Appendix C Preliminary Traffic Assessment



MEMORANDUM

| Date: | February 7, 2006 | TG: | 02150.00 |
|----------|---|--------|----------|
| To: | | | |
| From: | | | |
| cc: | | | |
| Subject: | Impacts of I 5/SR 509 Project on the Bow Lake Transfe | er Sta | tion |

This memorandum discusses the I-5/SR 509 Freight and Congestion Relief project in southwest King County and the impacts that may be incurred near the Bow Lake Transfer Station.

Project Description/Need

The I-5/SR 509 Freight and Congestion Relief project will extend SR 509 from its existing termination point at South 188th Street /12th Place South to a connection with Interstate 5 at South 200th Street. In addition to this connection I-5 south will be widened from Military Road to South 320th Street. This connection will serve current and future transportation needs by enhancing the southern access to Sea-Tac Airport.

Existing/Future Conditions

Currently SR 509 terminates at South 188th Street / 12th Place South and does not connect to the regional transportation highway system, causing congestion along 188th Street, SR 99, and I-5 during peak hours. Increases in future traffic volumes caused by economic growth and increased airport activity will result in continued congestion along 188th Street, SR 99, and I-5.

Future Circulation With-Project

The implementation of the SR 509 extension to I-5 will provide a direct connection to Sea-Tac Airport and shift traffic from existing travel routes enabling better circulation on SR 99, I-5, and 188th Street corridor. The addition of travel lanes along I-5 will also reduce congestion in the area. Motorists currently traveling on I-5 to access SR 509 via South 188th Street will be removed from this interchange and shifted to the new connection provided at South 200th Street

Impacts to Bow Lake Transfer Station

The SR 509 project should have little to no impacts on the area near the Bow Lake Transfer Station. Physically no changes to the interchange will affect right-of-way or access to Bow Lake Transfer Station. Additional lanes added to Interstate 5 will occur south of the site. Traffic volumes adjacent to the transfer station currently travel to/from the east via Orillia Road. Future circulation with the implementation of the SR 509 extension will not re-route the majority of these travelers. 2020 PM

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The Transpo Group

peak hour level of service on Orillia Road is not expected to change with or without the project.



An enlarged aerial image of the proposed SR 509 Corridor Improvements (South 188th

Internel

CAKE

Local Street Traffic Impact Evaluation for King County Transfer Stations

Prepared for King County Solid Waste Division

Prepared by HDR Engineering, Inc. 500 108th Avenue NE, Suite 1200 Bellevue, WA 98004

March 18, 2005

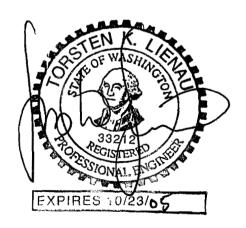


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INTRODUCTION

King County is currently assessing existing conditions at five transfer stations in an effort to determine what improvements could be implemented at some or all of the facilities. The County is evaluating 19 measures of effectiveness, including but not limited to, travel time to the facility, time spent on site, recycling services meet goals, daily handling capacity, safety, meets local noise ordinances, and meets criteria for acceptable traffic impacts on local streets.

This technical report documents the analysis for addressing one of the 19 measures of effectiveness, specifically, Criteria 15 as follows:

- 15. Meets Criteria for Acceptable Traffic Impacts on Local Streets
 - a) Local intersections remain below capacity if additional traffic is added, as defined by the Highway Capacity Manual
 - On average, traffic queues entering the transfer station do not spillover onto or impede local streets during 95 percent of the operating hours

The five King County transfer stations that were evaluated are:

- Algona Station, located in the City of Algona and having immediate traffic impacts to Algona, Auburn and King County local streets,
- Bow Lake Station, located in the City of Tukwila and having immediate traffic impacts to Seatac, Kent, and King County local streets,
- Factoria Station, located in the City of Bellevue and having immediate traffic impacts to Bellevue local streets.
- Houghton Station, located in the City of Kirkland and having immediate traffic impacts to Kirkland, and
- Renton Station, located in the City of Renton and having immediate traffic impacts to Renton.

The methodology, data collection, and results for Criteria 15 are provided in detail in the following report.

METHODOLOGY

Intersection Analysis

For Criterion 15a, the traffic analysis software program Synchro/SimTraffic was used to analyze local intersections. Most agencies require the analysis of the weekday p.m. peak hour, because it is typically the time period that the local street system is experiencing the most traffic. Although traffic associated with King County transfer stations may not be the highest during the weekday p.m. peak hour, the total volume on the local street system will likely be higher during the weekday p.m. peak hour, than during an hour that demand is highest for a transfer station (typically on a weekend). For this reason the weekday p.m. peak hour was analyzed at each of the study intersections.

A traffic operational analysis (level of service (LOS) and volume-to-capacity calculation) was performed at the intersections selected by each host Agency deemed to be most impacted by transfer station traffic. LOS refers to the degree of congestion at an intersection, measured in average control delay, and based on the methodologies provided in the Highway Capacity Manual. LOS A represents free-flow conditions (motorists experience little or no delay and traffic levels are well below roadway capacity), LOS F represents forced-flow conditions (motorists experience very long delays, in excess of 80 seconds at signalized intersections

and more than 50 seconds at unsignalized intersections, and traffic levels exceed roadway capacity), and LOS B to E represent decreasing desirable conditions. A more detailed discussion of the LOS concept is presented in the technical report.

The volume-to-capacity ratio (v/c) is the peak hour traffic volume (vehicles/hour) at an intersection divided by the maximum traffic volume that the intersection can maintain. For example, when v/c equals 0.85, it can be said that peak hour traffic uses 85 percent of the intersection's capacity; or 15 percent of the capacity is not used. When v/c approaches 1.0 (e.g., 0.95), traffic flow becomes unstable such that small disruptions can cause traffic flow to break down and long traffic queues to form.

If an intersection operates at LOS F or exceeds a v/c of 1.0, Criteria 15a is not achieved.

As mentioned previously, each host Agency selected the intersections that they deemed to be most impacted by transfer station traffic, with the exception of the City of Renton. The intersections analyzed in the City of Renton were selected by the project team in the absence of recommendations directly from the City. Intersection p.m. peak hour turning movement counts and intersection channelization were either obtained directly from the host agency, or collected in the field. The selected intersections are as follows for each transfer station:

Algona

- West Valley Highway/Driveway
- West Valley Highway/15th Street SW
- West Valley Highway/1st Avenue N

Bow Lake

- Orillia Road/Driveway
- S. 188th Street/I-5 NB Ramp
- S. 188th Street/Military Rd.

Factoria

- Richards Road/SE 32nd
- Richards Road/Eastgate Way

Houghton

- 116th Avenue NE/NE 60th Street
- 116th Avenue NE/NE 70th Street
- 116th Avenue NE/I-405 NB ramps
- NE 60th Street/Driveway

Renton

- NE 3rd St/Edmonds Avenue NE
- NE 4th St/Jefferson Avenue NE
- NE 4th St/Union Avenue NE

Queue Analysis

For Criterion 15b, basic queuing theory as described in *Traffic Flow Fundamentals* (Adolf D. May, 1990) was applied to estimate the average queue formed at each transfer station weigh station upon entering. The equation used to estimate the average queue is as follows:

$$E(n) = (2\rho - \rho^2) \div (2(1-\rho))$$

E(n) = average number in system (vehicle)

 ρ = traffic intensity

$$\rho = \frac{\lambda}{\mu}$$

λ = mean arrival rate (vehicles per hour)

 μ = mean service rate per lane (vehicles per hour)

In addition, the following assumptions were made in order to apply the above queuing equation to the available data:

- Vehicle arrival rate is assumed to be random, that is, vehicles do not arrive at transfer stations at equal increments of time, rather they arrive at "random" times.
- Vehicle service rate is assumed to be constant
- Traffic intensity (volume-to-capacity ratio) must be less than 1.0
- There is only one inbound scale at each transfer station

If the average vehicle queue exceeds the available storage capacity, then the queue is spilling over onto the local street system or impeding local street operations. The available storage capacity was defined as the distance from the inbound transfer station scale to the first driveway or intersection on a local street or a point on the local street at which the queue from the transfer station would impede non-transfer station traffic.

If the average queue exceeds the available storage capacity more than 95 percent of the operating hours, Criteria 15b is not met.

For Criteria 15b, transaction data entering each transfer station was obtained from King County, for every operating hour and every operating day in 2004. That data indicates the hourly demand for each transfer station by vehicle type. Based on two studies performed by King County in the mid 1990's at the Algona, Renton, Bow Lake, and 1st Avenue NE transfer stations, it was determined that the average time spent on the inbound scale is between 22 and 28 seconds. With these two pieces of data (hourly demand and average transaction time) the average vehicle queue waiting to be served entering a transfer station was calculated based on the equations listed above.

At one station, the Bow Lake Transfer Station, each hour was not analyzed. Out of the 22 hours of the day that Bow Lake is open, only the core hours of 8 am to 6 pm for weekdays and 8:30 am to 5:30 pm for weekends were analyzed, so that the data did not skew the results for hours where little traffic is experienced.

Forecasts

Both Criteria 15a and 15b were also analyzed based on 2030 projections, provided by King County. The Solid Waste Division developed the projections using its forecast model. This model predicts waste disposal based on such factors as growth in population, employment, income, and assumptions about additional recycling activity.

RESULTS

Intersection Analysis

The results for Criteria 15a, the intersection operational analysis, are summarized in **Tables 1** and **2** for existing conditions (2005) and 2025, respectively. In 2005, the Algona, Factoria, and Renton transfer stations all meet current intersection LOS standards (Criteria 15a). Both the Bow Lake and Houghton transfer stations have one intersection that does not meet the current intersection LOS standard, meaning, the intersection is LOS F and/or the v/c ratio is greater than or equal to 1.0. At Bow Lake, it is estimated that if there were no vehicles related to the transfer station at the intersection, the intersection would operate below capacity. Conversely, at the Houghton station, the intersection exceeds capacity even without traffic associated with the transfer station.

By 2025, all of the transfer stations have at least one over-capacity intersection impacted by the transfer station, with or without additional growth at the transfer station (see **Table 2** and **Figure 2**)

Figures 1 and 2 illustrate the same information presented in Tables 1 and 2, graphically.

Table 1

Criteria 15a - Existing Conditions (2005) Analysis Summary

| | A STANKE OF L | | Existing w/o Transfer Station | | | Existing w/ Transfer Station | | | tation | |
|----------|------------------------|---|-------------------------------|-----|------|------------------------------|--------------------|-----|--------|--------------------|
| Facility | Intersection | | Delay (sec/veh) | LOS | V/C | Meets Criteria? | Delay (sec/veh) | LOS | VIC | Meets Criteria? |
| Algona | WVH/Driveway | Ф | n/a | n/a | 0.82 | YES | 38.4 | Е | 0.83 | YES |
| | WVH/15th St | * | 22.0 | С | 0.88 | YES | 22.7 | С | 0.89 | YES |
| | WVH/1st Ave | • | 41.8 | E | 0.39 | YES | 43.0 | E | 0.40 | YES |
| Bow Lake | Orillia Rd/Driveway | • | n/a | n/a | 0.75 | YES | >110 | F | 1.09 | NO |
| | 188th St/I-5 NB Rmp | 8 | 29.0 | С | 0.94 | YES | 29.9 | С | 0.95 | YES |
| | 188th St/Military Rd | * | 27.5 | С | 0.68 | YES | 27.6 | С | 0.68 | YES |
| Factoria | Richards Rd/32nd St | 3 | 13.2 | В | 0.48 | YES | 15.1 | В | 0.50 | YES |
| actoria | Richards Rd/Eastgate | 1 | 31.5 | С | 0.81 | YES | 31.2 | С | 0.81 | YES |
| Houghton | 116th Ave/60th St | • | 18.8 | С | 0.80 | YES | 19.3 | С | 0.81 | YES |
| | 116th Ave/70th St | * | 55.1 | Е | 1.00 | NO | 55.3 | E | 1.00 | NO |
| | 116th Ave/I-405 NB Rmp | * | 33.7 | С | 0.93 | YES | 34.3 | C | 0.93 | YES |
| | 60th St/Driveway | 9 | n/a | n/a | 0.08 | YES | 9.4 | A | 0.08 | YES |
| | 3rd St/Edmonds Ave | * | 13.9 | В | 0.67 | YES | 13.9 | В | 0.67 | YES |
| Renton | 4th St/Jefferson Ave | 8 | 15.6 | В | 0.75 | YES | 15,6 | В | 0.75 | YES |
| | 4th St/Union Ave | * | 17.0 | В | 0.72 | YES | 17.0 | В | 0.72 | YES |

Notes:

- 1. = signalized intersection, = stop-controlled intersection
- 2. Delay, or control delay, is measured in seconds per vehicle, and is a measure of all the delay contributable to traffic control measures, such as signals or stop signs. At signalized intersections and all-way stop-controlled intersections, the reported delay is the average of all the control delay experienced for all movements. At one-way and two-way stop-controlled intersections, the reported delay is for only one movement, the movement experiencing the worst control delay, which is typically one of the stop-controlled side street approaches. The control delay reported at two-way stop-controlled intersections is not a valid indication of the operations of the entire intersection.
- LOS refers to Level of Service and is based on the methodologies outlined in the 2000 Highway Capacity Manual. LOS is rated from "A" (low delay) to "F" (delay in excess of 80 seconds per vehicle at signalized intersections, and 50 seconds at unsignalized intersections).
- 4. V/C = volume-to-capacity ratio
- n/a = not available because this intersection is stop-controlled and the movement experiencing the worst
 control delay would be the movement exiting the transfer station, and because this scenario assumes no traffic
 associated with the transfer station, there is no control delay to report.

Table 2
Criteria 15a - Future Conditions (2025) Analysis Summary

| | Ontona | 194 | i utuic ooi | Iditionio | (====) | | anning J | | | |
|----------|---|-----|--------------------|-----------|---------|--------------------|--------------------|----------|--------|--------------------|
| | 是是是是 1855 · 185 | | 2025 w/o G | rowth at | Transfe | r Station | 2025 w/ G | rowth at | Transf | er Station |
| Facility | Intersection | | Delay (sec/veh) | LOS | V/C | Meets Criteria? | Delay (sec/veh) | LOS | VIC | Meets Criteria? |
| Algona | WVH/Driveway |) | >110 | F | 1.26 | NO | >110 | F | 1.26 | NO |
| | WVH/15th St | 1 | 94.3 | F | 1.28 | NO | 94.5 | F | 1.29 | NO |
| | WVH/1st Ave | | >110 | F | n/c | NO | >110 | F | n/c | NO |
| Bow Lake | Orillia Rd/Driveway | | >110 | F | n/c | NO | >110 | F | n/c | NO |
| | 188th St/I-5 NB Rmp | Í | >110 | F | 1.52 | NO | >110 | F | 1.54 | NO |
| | 188th St/Military Rd | 8 | 51.0 | D | 0.99 | YES | 51.5 | D | 0.99 | YES |
| Factoria | Richards Rd/32nd St | | 24.2 | С | 0.76 | YES | 26.6 | С | 0.79 | YES |
| raciona | Richards Rd/Eastgate | 300 | >110 | F | 1.23 | NO | >110 | F | 1.23 | NO |
| Houghton | 116th Ave/60th St |) | >110 | F | 1.37 | NO | >110 | F | 1,44 | NO |
| | 116th Ave/70th St | No. | >110 | F | 1.51 | NO | >110 | F | 1.51 | NO |
| | 116th Ave/I-405 NB Rmp | | >110 | F | 1.32 | NO | >110 | F | 1.33 | NO |
| | 60th St/Driveway | P | 10.2 | В | 0.12 | YES | 10.7 | В | 0.12 | YES |
| Renton | 3rd St/Edmonds Ave | M | 21.8 | С | 0.95 | YES | 21.8 | С | 0.95 | YES |
| | 4th St/Jefferson Ave | No. | 17.8 | В | 0.85 | YES | 18.4 | В | 0.86 | YES |
| | 4th St/Union Ave | Ĭ. | 90.6 | F | 1.13 | NO | 91.3 | F | 1.13 | NO |
| | | | | | | | | | | |

Notes:

- 1. signalized intersection, = stop-controlled intersection
- 2. Delay, or control delay, is measured in seconds per vehicle, and is a measure of all the delay contributable to traffic control measures, such as signals or stop signs. At signalized intersections and all-way stop-controlled intersections, the reported delay is the average of all the control delay experienced for all movements. At one-way and two-way stop-controlled intersections, the reported delay is for only one movement, the movement experiencing the worst control delay, which is typically one of the stop-controlled side street approaches. The control delay reported at two-way stop-controlled intersections is not a valid indication of the operations of the entire intersection.
- LOS refers to Level of Service and is based on the methodologies outlined in the 2000 Highway Capacity
 Manual. LOS is rated from "A" (low delay) to "F" (delay in excess of 80 seconds per vehicle at signalized
 intersections, and 50 seconds at unsignalized intersections).
- V/C = volume-to-capacity ratio
- n/c = the volume-to-capacity ratio exceeds calculable limits.

Figure 1

Criteria 15a - Existing Conditions (2005) Analysis Summary

Existing w/o Transfer Station Existing w/ Transfer Station

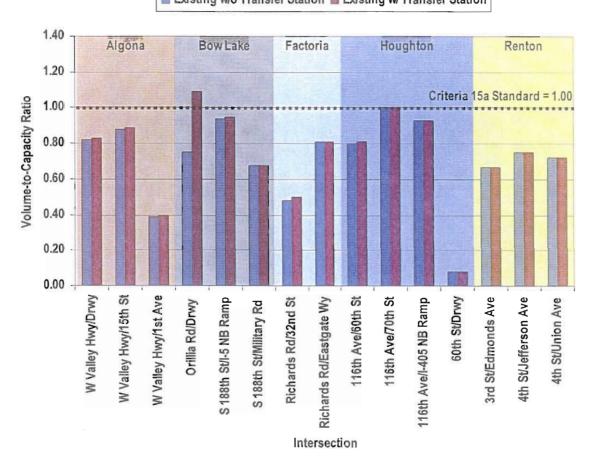
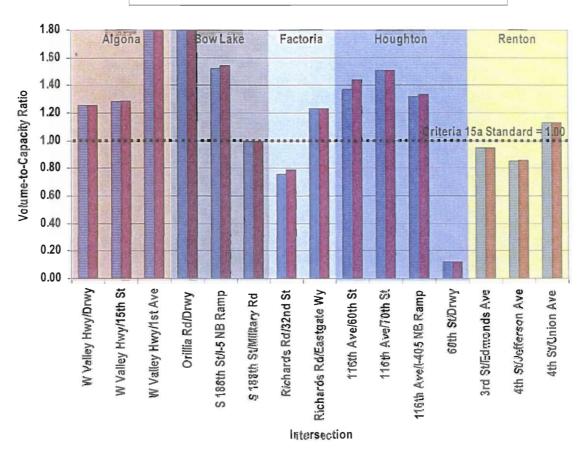


Figure 2 Criteria 15a - Future Conditions (2025) Analysis Summary

2025 w/o Transfer Station Growth 🔳 2025 w/ Transfer Station Growth



Queue Analysis

In order to determine if the average queue at each of the transfer stations exceed available storage, the average vehicle length must be calculated. The average vehicle length was calculated based on the mix of passenger cars versus transfer station trucks at each facility, and assuming 25 feet per passenger car and 75 feet per transfer station truck. The average vehicle length is summarized in **Table 3**.

Table 3
Average Queue Capacity by Site

| | Average Vehicle | On-Site Queue Capacity | | | | |
|----------|-----------------|------------------------|-----------------|--|--|--|
| Facility | Length (feet) | Length (feet) | No. of Vehicles | | | |
| Algona | 27.4 | 135 | 4 | | | |
| Bow Lake | 32.5 | 476 | 14 | | | |
| Factoria | 26.8 | 64 | 2 | | | |
| Houghton | 28.6 | 346 | 12 | | | |
| Renton | 26.5 | 70 | 2 | | | |

Notes:

- 1. The average vehicle length was calculated based on the average mix of passenger cars versus transfer station trucks at each facility, and assuming 25 feet per passenger car and 75 feet per transfer station truck.
- The queue capacity was provided by King County and is the distance from the weigh station to the first off-site intersection or driveway that would be impacted by the queue of vehicles at the transfer station.

The 2004 existing condition results of the Criteria 15b analysis, queuing, are presented in **Table 4**. Based on all data available in 2004 from January to December, only the Renton transfer station meets Criteria 15b, where traffic queues entering the transfer station do not spillover onto or impede local streets during 95 percent of the operating hours. The data was further analyzed to determine if the majority of the off-site queuing took place on the weekend or weekday. In fact, all of the transfer station sites would meet the queue criteria on a weekday, i.e. none of the sites queue off-site more than 95 percent of the operating hours on a weekday. Conversely, all of the transfer stations fail the criteria 15b on weekends.

Table 4
Criteria 15b – Queue Capacity Analysis Summary
All Days in 2004

| Facility | Days of Week Analyzed | Total Hours Analyzed | No. of Hours Queue Exceeds Capacity | Percent of Hours Queue Exceeds Capacity | Meets Criteria? |
|----------|--------------------------|-------------------------|---|---|--------------------|
| Algona | Weekday | 2,995 | 45 | 2% | YES |
| | Weekend | 1,002 | 454 | 44% | NO |
| | All Days | 4,017 | 499 | 12% | NO |
| Bow Lake | Weekday | 2,615 | 20 | 1% | YES |
| | Weekend | 1,007 | 286 | 28% | NO |
| | All Days | 3,622 | 306 | 8% | NO |
| Factoria | Weekday | 4,010 | 35 | 1% | YES |
| | Weekend | 1,018 | 415 | 41% | NO |
| | All Days | 5,028 | 450 | 9% | NO |
| Houghton | Weekday | 2,485 | 15 | 1% | YES |
| | Weekend | 1,014 | 171 | 17% | NO |
| | All Days | 3,499 | 186 | 5% | NO |
| Renton | Weekday | 2,658 | 1 | 0% | YES |
| | Weekend | 1,022 | 81 | 8% | NO |
| | All Days | 3,680 | 82 | 2% | YES |

It should be noted that at the Bow Lake transfer station, the analysis for Criteria 5, which evaluated the onsite capacity of each transfer station, indicated that station has adequate capacity (LOS C) in 2005 on site to handle existing traffic flows. Therefore, the fact that Bow Lake does not meet the off-site queue criteria would indicate that the off-site queue is not related to the on-site capacity for this station. Rather, the constraint is the process time at the scale. King County implemented new operating hours and made some functional changes at all of the transfer stations in the latter half of 2004, specifically July to December. As a result, the queue data was reanalyzed using data from only the latter half of the year to determine if the hours of operation and functional changes would have made a difference with respect to off-site queuing. **Table 5** summarizes the queue analysis results for data represented by July to December 2004. Both Renton and Houghton meet Criteria 15b, when only the latter half of 2004 is analyzed. as well. Similar to the data analysis for the full year, all of the sites meet Criteria 15b on a weekday, while none of them meet the criteria on a weekend. With the exception of the Algona transfer station, all of the transfer stations experienced fewer occurrences of the queue spilling over onto City streets or impeding traffic flow.

Table 5
Criteria 15b – Queue Capacity Analysis Summary
July to December in 2004

| Facility | Days of Week Analyzed | Total Hours Analyzed | No. of Hours Queue Exceeds Capacity | Percent of Hours Queue Exceeds Capacity | Meets Criteria? |
|----------|--------------------------|-------------------------|---|---|--------------------|
| Algona | Weekday | 1,458 | 40 | 3% | YES |
| | Weekend | 491 | 221 | 45% | NO |
| | All Days | 1,949 | 261 | 13% | NO |
| Bow Lake | Weekday | 1,308 | 18 | 1% | YES |
| | Weekend | 487 | 107 | 22% | NO |
| | All Days | 1,795 | 125 | 7% | NO |
| | Weekday | 1,786 | 26 | 1% | YES |
| Factoria | Weekend | 490 | 184 | 38% | NO |
| | All Days | 2,276 | 210 | 9% | NO |
| Houghton | Weekday | 1,199 | 14 | 1% | YES |
| | Weekend | 489 | 69 | 14% | NO |
| | All Days | 1,688 | 83 | 5% | YES |
| Renton | Weekday | 1,326 | 1 | 0% | YES |
| | Weekend | 493 | 29 | 6% | NO |
| | All Days | 1,819 | 30 | 2% | YES |

Table 6 summarizes the queue analysis based on 2025 projections of transfer station use. By 2025, none of the facilities will satisfy Criteria 15b, with queues extending off-site between 15 and 41 percent of the time, depending on the location. In fact, even weekdays will experience queue failure at all the transfer stations, with the exception of Renton.

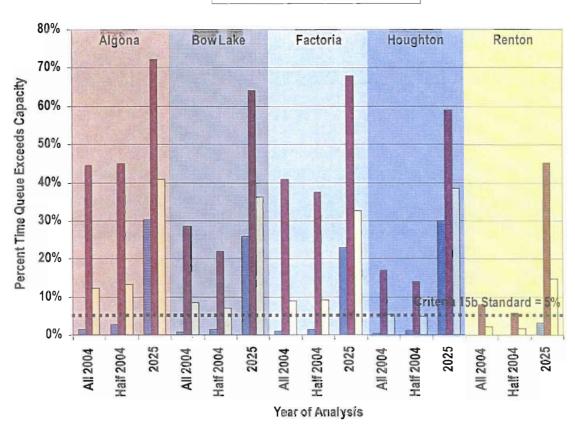
Table 6
Criteria 15b – 2025 Queue Capacity Analysis Summary

| Facility | Days of Week Analyzed | Total Hours Analyzed | No. of Hours Queue Exceeds Capacity | Percent of Hours Queue Exceeds Capacity | Meets Criteria? |
|----------|--------------------------|-------------------------|---|---|--------------------|
| Älgona | Weekday | 1,458 | 442 | 30% | NO |
| | Weekend | 490 | 354 | 72% | NO |
| | All Days | 1,948 | 796 | 41% | NO |
| Bow Lake | Weekday | 1,308 | 339 | 26% | NO |
| | Weekend | 487 | 312 | 64% | NO |
| | All Days | 1,795 | 651 | 36% | NO |
| | Weekday | 1,786 | 412 | 23% | NO |
| Factoria | Weekend | 490 | 333 | 68% | NO |
| | All Days | 2,276 | 745 | 33% | NO |
| Houghton | Weekday | 1,199 | 360 | 30% | NO |
| | Weekend | 488 | 288 | 59% | NO |
| | All Days | 1,687 | 648 | 38% | NO |
| Renton | Weekday | 1,326 | 43 | 3% | YES |
| | Weekend | 493 | 223 | 45% | NO |
| | All Days | 1,819 | 266 | 15% | NO |

Figure 3 illustrates the data provided Tables 4, 5, and 6, graphically.

Figure 3 Criteria 15b – Queue Capacity Analysis Summary





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|--|--|--|--|--------------------------------|--|---|---|------|
| Viewenichi eren | NEW | NEF S | | SWES | W. F. | 4 fa | | |
| Lane Configurations | † } | | ካ ተተ | ሻ | 7 | | | |
| Sign Control | Free | | Free | | | | | ١. |
| Grade | 0% | | 0% | 0% | s racero | er l | | |
| Volume (veh/h) | 1753 | | 19 1444 | 2 | 21 | | | * |
| Peak Hour Factor Hourly flow rate (vph) | 0.92 1905 | 0.92 0.9 | 92 0.92 21 1570 | 0.92 9 | 0.92 - 23 | e en | | |
| Pedestrians | 1900 | 9 | 21 13/0 | | 23 | tari da Maritari | | |
| Lane Width (ft) | · | era ar gal | 3 77 P. 1 | 4. CUEW | | gar ares, | | |
| Walking Speed (ft/s) | | * * * * * | | Maria de California | Constant of the constant of th | | | |
| Percent Blockage | | | | 學生對於 | | | | ** |
| Right turn flare (veh) | | | | | na Anne Cara Na anna ann | | ************************************** | |
| Median type | | | | None | | | | . * |
| Median storage veh) Upstream signal (ft) | e interest de | to spraway | 044 | | ennge over kallogne stem. | | | |
| pX, platoon unblocked | | | 244 | 0.76 | | | | |
| vC, conflicting volume | | - 19 | 14 | 2736 | 957 | | | |
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| vC2, stage 2 conf vol | | | | | | | | |
| vCu, unblocked vol | | 19 | 1.1. | 2964 | 957 | | | |
| tC, single (s) | o gesti uin de di etito o constato | 4 | | 6.8 | 6.9 | | | |
| tC, 2 stage (s) | 1 11 | | rani e e e e | 3.5 | ender en | | en e | |
| tF (s) p0 queue free % | | | .2 93 | ာ.၁ႏွဲ့ 0 | 3.3 91 | | | Á |
| cM capacity (veh/h) | | | 93 06 | | 258 | | | 7. |
| * Window Sales And St. 1830 1830 1840 1850 1850 1850 1850 1850 1850 1850 185 | Thijle (ubbette) | | | | | Saliata (Salias) | iga (Sissig Cybrae), das Miliotes, pristi Salv | |
| Divinition: (Estina 4) | * NR 1 | may at char | 1 0 0 E 2 | 200 | VV SVV21 | | | |
| Volume Total Volume Left | 1270 0 | "A Carlot on a participation of the face for a | 21 785 21 0 | 785 0 | 9 23 9 0 | | | 3 |
| Volume Right | - 20 0 5 | | 0 0 | 0 | · 0 23 | | | 14 |
| cSH | 1700 | \$ \$4.77 \$4.7 \$7.5 \$*\$\$ "\$\$\$\$\$\$\$ | 06 1700 | 1700 | 8 258 | | | 13. |
| Volume to Capacity | 0.75 | 0.38 0.0 | | | 1.09 0.09 | | | |
| Queue Length 95th (ft) | 0 | 0 | 5 0 | 0 | 46 7 | 2000 | | • |
| Control Delay (s) | 0.0 | 0.0 17 | .6 0.0 | 0.0-9 | man and the second second | | | Ŕ |
| Lane LOS | tor caratis | ** 335F 9%/1950 * | C | ingerika kapinelile 📥 | F C | sil finansk hilliony komanye over m | Agentum Topick, ki in trade in the Art general track on the | , |
| Approach Delay (s) Approach LOS | 0.0 | | .2 | 2 | 75.4 F | | | |
| | o dubra was paga a matala | | | | F | · | | ou- |
| Meleschian Primitation | | | | 600 | 188 | e present | 1444 | |
| Average Delay | egenemytykein in hours | | .6 | Maria de la compressión de com | eriore and the contract of the con- | on Laind Spinsteithea ar Car | manni i 1880 - Langereingen i Alexani (i i i evile vili eli | J. 4 |
| Intersection Capacity Ut | ilization | 58.7 | OCT No-descriptions for a transfer of National N | CU Level (| of Service | В | | 32 |
| Analysis Period (min) | eren arron er stock og | Coloresta esta esta de la composição de la coloresta de la c | 15 0300 0486 0 2004 | a egggageta, hala hakke keta | erie i userawani stupo i naba | umaik site. A morbid but the home out to a size | States and selective look methods are also assessed | |

| | 1 | -> | • | 1 | 4- | 4 | 1 | † | ~ | \ | † | 4 |
|------------------------------------|-------------------------------|--------------------------|---|--|--|--|-------------------------------------|---|--|------------------------------------|--|-----------------------------|
| | 2 (2) 22 (2) | 12.5 | | | | | NEE | Nells | ANGE | (\$18) | 387 | SISIA |
| Lane Configurations | দ | 个个 | | TO A CONTRACTOR OF THE SECOND | 什 | 7 | 7 | 44 | | | and proceedings of the second of the | <u></u> |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 71900° | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Turning Speed (mph) | 15 | | 9 | 15 | | ., 9 | , 15 | | 9 | 15 | | , , , 9 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fit | | | | . 7. | | 0.850 | | 0.932 | | | | atállí. |
| Flt Protected | 0.950 | | | the control of the | mann - Million and Million | alanda aa ir da Sankala | 0.950 | 0.974 | t inside voitaisso | N. C. SANGER TOTALS | wasawa ana in a sa | such the second |
| Satd. Flow (prot) | 1770 | 3539 | 0 | . Q. | 3539 | 1583 | 1681 | 1606 | 0 | (0) | 0 | . 0 |
| Flt Permitted | 0.950 | . Marana area e | en i saeki z iski | en samene | | | 0.950 | 0.974 | nterrette 460 | undersom særk | Burgona di Lore | - actrosacia |
| Satd. Flow (perm) | 1770 | 3539 | ્ર _ે 0ે ે | 0 | 3539 | 1583 | 1681 | 1606 | 0. | . 0 | 0 | , 0 |
| Right Turn on Red | 25000a00 | ov a Medec A COV | Yes | | ero-schesson | Yes | | | Yes | Onethe Chines | OSAN ZANGAR | Yes |
| Satd. Flow (RTOR) | 1 00 | 1 00 | 1 00 | 1.00 | 1 00 | 580 1.00 | 1.00 | 47 | 1.00 | 4 00 | 1 00 | 1 00 |
| Headway Factor Link Speed (mph) | 1.00 | 1.00 30 | 1.00 | 1.00 | 1.00 30 | 1.00 | 1.00 | 1.00 30 | 1.00 | 1.00 | 1.00 - 30 | 1.00 |
| Link Distance (ft) | | 650 | | | 244 | | | 835 | | | 894 | NACONA. |
| Travel Time (s) | | ୀ4.8 | | | 5.5 | 13245 | | 19.0 | | | 20.3 | |
| Volume (vph) | 367 | 1362 | 0 | 0 | 884 | 923 | 397 | 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - | 117 | 0 | <u>2</u> 0.0 | 0 |
| Peak Hour Factor | ∴ 0.92 | 0.92 | | 0.92 | 0.92 | . 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 399 | 1480 | 0.02 | 0 | 961 | 1003 | 432 | 1 | 127 | 0.00 | 0.05 | 0 |
| Lane Group Flow (vph) | | 1480 | . 0 | . 0 | 961 | 1003 | 280 | 280 | 0 | . O | o s | 3 Z O |
| Turn Type | Prot | ti propositioni | THE PARTIES THE SERVICE | | | Perm | Perm | | 8.66669 2 ,73.26 | CONTRACTOR | | DER CARTO |
| Protected Phases | 7 | 4 | | | - 8 | | | . 2 | | | | 2565 |
| Permitted Phases | er erry sproveni evil. | C. Tana S. W. Strategia. | 224 2 1 223 1239 124 | RN (** ABLAN SERVICE **) | ADDOLL APPRICATION AT ACC | 8 | 2 | mad trio (aligno acosos | edition and a second. | in emost to or its in | ·*. ** (25° A. 17* | 567 0.00e 1.01 . 2 |
| Total Split (s) | 22.0 | 59.0 🏃 | 0.0 | 0.0 | .37.0 | 37.0 | 21.0 | 21.0 | ೆ0.0 | 0.0 | ં 0.0 | 0.0 |
| Act Effct Green (s) | 18.0 | 55.0 | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | | 33.0 | 33.0 | 17.0 | 17.0 | | | | |
| Actuated g/C Ratio | 0.22 | · 0.69 / | | | 0.41 | 0.41 | 0.21 | 0.21 | V EX. | | | |
| v/c Ratio | 1.00 | 0.61 | n e data a med ini | Warf on McCACACACACACACACACACACACACACACACACACACA | 0.66 | 1.01 | 0.78 | 0.74 | and a section of the | erest, standet tada a standa - 500 | 3 Aug. 407 St. 207 - V 207 | M. L. 104 B. 100 |
| Control Delay | 79.6 | 8.0 | | | 21.6 | 43.1 | 47.3 | 38.1 | | | | |
| Queue Delay | 0.0 | 0.0 | Tromor de l'apparente | re electronis | 0.0 | 0.0 | 0.0 | 0.0 | | vers teameration MA | 08000000 a 440.086 | er de districte des des |
| Total Delay | 79.6 | 8.0 | | | 21.6 | 43.1 | 47.3 | × 38.1 | | | Fide Hije | |
| LOS | E | A | | | C | D | D | D | C\$0-30~40.0083.63 | 72600 | 1860-2000 (CE) De | warethi.t |
| Approach Delay | | 23.2 | | | 32.6 | | | 42.7 | | | | |
| Approach LOS | 309 | C 666 | are difee | | C 682 | 410 | 225 | D 192 | 746900V | | Territorio | o-zazew |
| Stops (vph) | economia sella accessiva | | AGALANDI | | ar a | | | 1 <i>92</i> 5 | | | | |
| Fuel Used(gal) CO Emissions (g/hr) | 10 726 | 16 1123 | | ioense 143 | 653 | 12 848 | 5 378 | 331 | | | ************************************** | FINATE |
| NOx Emissions (g/hr) | 141 | 218 | | | 127 | 165 | 74 | 64 | | | Kadenda. | 1.078/1012 |
| VOC Emissions (g/hr) | 168 | 260 | V. 1897, 477 | | 151 | 196 | 88 | 77 | | | | |
| Dilemma Vehicles (#) | 0 | 0 | are electronic | 140148.9 3 0-164 | 0 | 0 | 0 | 0 | i Salahan S | | | and helological |
| Queue Length 50th (ft) | °~201 | 177 | | | 197 | ~278 | 140 | 114 | | | | |
| Queue Length 95th (ft) | #378 | 231 | 34287 (33344)-11.01 | CONTRACTOR STATES | 263 | #578 | #267 | #234 | ARRIVA (ARRIVA | idati ilak ja landa karenya juli | Manghaeth a 1970 | P-Suffer Chroser |
| Internal Link Dist (ft) | _ | 570 | | | 164 | _ | | 755 | | | 814 | |
| Turn Bay Length (ft) | erege to the An A College See | | was emperiorly | on serve was englished | ee.magemetryggeriddic | · ···································· | an antico grant high control (1999) | errore all of the contract of | enan teriporativo (non 1000) | en er ar armen i ingere | ny angkangsahigaga di Si | espera i primeralità di Per |
| Base Capacity (vph) | 398 | 2433 | | | 1460 | 994 | 357 | 378 | | | | |
| Starvation Cap Reductn | | 0 | | | 0 | 0 | 0 | 0 | | | | my comb me |
| Spillback Cap Reductn | 0. | 0 | | | 0 | 0 | 0 | 0 | | | | |
| Storage Cap Reductn | 0 | 0 | | | 0 | 0 | 0 | 0 | | | | |
| Reduced v/c Ratio | 1.00 | 0.61 | | | 0.66 | -1.01 | 0.78 | 0.74 | | | | |
| | | | | | | | | | | | | |

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green

Control Type: Pretimed Maximum v/c Ratio: 1.01

Intersection Signal Delay: 29.9

Intersection LOS: C ICU Level of Service G

Intersection Capacity Utilization 102.1% Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: S 188th St & I-5 NB Ramp

| opino anu i nases. o. | 3 100th St & 1-3 ND Namp | |
|--------------------------|--------------------------|---|
| * † _{ø2} | — > g4 | |
| | | - |
| | 1 | |
| | | |

| | ۶ | - | > | 1 | 4 | | 4 | † - | - | 1 | Ţ | 4 |
|-------------------------|------------------------|--|--|--|---|--|--|---|---|--|-----------------------------|---|
| calner Cyralin and the | 0 (2.5)b | EBT | E 512 | W.Elso | ///!E) [2 | SWBR. | NBL | NET | NER | SEL | Single (| Sala |
| Lane Configurations | * | ڼ | | ሻሻ | ĵ. | | * | 个个 | Ħ | * | ተተቡ | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Turning Speed (mph) | 15 | | 9 | 15 | | . 9 | 15 | 472475 | 9 | 15 | | ≥ 9 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 0.91 |
| Fit | A TONGO PARAMETERS | 0.992 | de de Sil. | | 0.965 | gray yar | | | 0.850 | | 0.996 | |
| Flt Protected | 0.950 | * N 1844 | | 0.950 | -262 At . 1003 1 | elengen ander zen herriken | 0.950 | (01.1971 | 2. 4 2 2 3 4 | 0.950 | | |
| Satd. Flow (prot) | 1770 | 1848 | 0 | 3433 | 1798 | O: | 1770 | 3539 | 1583 | 1770 | 5065 | · 0 |
| Flt Permitted | 0.950 | A.E. A. De Sea . | The transfer of | 0.950 | Market and the second | 2. 1. 200 P. Series 1939 C. | 0.950 | sime se a Brieve | Million Million Mil | 0.950 | Tak at minaters of the | |
| Satd. Flow (perm) | 1770 | 1848 | 0 | 3433 | ₹1798 | 0 | 1770 | 3539 | 1583 | 1770 | 5065 | 0 |
| Right Turn on Red | er i skare up i | 1.9 | Yes | and the second s | .e.p | Yes | N 100 116 W 111 1 | Mr. " " " " " " " " " " " " " " " " " " " | Yes | The same of the sa | of the second of the second | Yes |
| Said: Flow (RTOR) | | 4 | | | 23 | | | | 298 | 27156 | 6 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Link Speed (mph) | | 30 | | | · 30 | | | 30 | | | 30 | |
| Link Distance (ft) | A CANDO DA LIPERRO COM | 1070 | | 2 (1042 exet) | 798 | ny ir Cranditianianianian | ii siii juurig meetiine | 306 | . Omerciási Solm n | time for the distance | 408 | 1100 |
| Travel Time (s) | | 24.3 | | | 18.1 | 100 | | 7.0 | | | 9.3 | |
| Volume (vph) | 15 | 128 | 7 | 379 | 280 | 86 | 71 | 635 | 274 | 103 | 1167 | 34 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | . 0.92∜ | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 139 | 8 | 412 | 304 | 93 | 77 | 690 | 298 | 112 | 1268 | 37 |
| Lane Group Flow (vph) | 16 | 147 | 0 | 412 | 397 | · O. | 77. | 690 | 298 | % 112 | 1305 | 0 |
| Turn Type | Prot | · · · · · · · · · · · · · · · · · · · | | Prot | | ************************************** | Prot | C1 -4-6-6/2002 | Perm | Prot | | |
| Protected Phases | (7) | 4 | | 3 | 8 | | * * * * 5 * | 2 | | # (1) | 6 | 19 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |
| Permitted Phases | rio i i i e cingo | | . , , | | | | | | 2 | | | • |
| Total Split (s) | 8.0 | 20.0 | 0.0 | 15.0 | 27.0 | 0.0 | 9.0 | 24.0 | 24.0 | 11.0 | 26.0 | 0.0 |
| Act Effct Green (s) | 4.0 | 16.0 | | 11.0 | 23.0 | | 5.0 | 20.0 | 20.0 | 7.0 | 22.0 | |
| Actuated g/C Ratio | 0.06 | 0.23 | | 0.16 | ∞0.33 | | 0.07 | 0.29 | 0.29 | 0.10 | 0.31 | |
| v/c Ratio | 0.16 | 0.35 | | 0.76 | 0.66 | | 0.61 | 0.68 | 0.45 | 0.63 | 0.82 | |
| Control Delay | 35.1 | 24.7 | | 39,3 | ₹25.0 | | 54.4 | 26.3 | 5.2 | 48.4 | 27.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | Υ, | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 35,1 | 24.7 | | 39.3 | \$ 25.0 | | 54.4 | 26.3 | 5.2 | 48.4 | 27.3 | |
| LOS | D | С | | D | С | | D | С | Α | D | C | |
| Approach Delay | | 25.8 | | | 32.3 | | | 22.4 | | | 28.9 | |
| Approach LOS | | C | | | С | | | С | | | С | |
| Stops (vph) | 18 | 107 | | 341 | 288 | | 63 | 6541 | 34 | 93 | 1045 | |
| Fuel Used(gal) | 0 | 2 | | 7 | 6 | | 2 | 11 | 3 | 2 | 16 | |
| CO Emissions (g/hr) | 23 | S NOT LISTS, NY WOLLDON'S PARKET PROPERTY. | | 508 | V40000 / 2014/04/20 406/404 - 10/10/10/20 | | 116 | 777 | TO COMPANY OF THE PARTY OF THE | | 1.137 | |
| NOx Emissions (g/hr) | 5 | 33 | | 99 | 78 | | 23 | 151 | 34 | 25 | 221 | |
| VOC Emissions (g/hr) | 5 | | | 118 | 93 | | 27 | 180 | 41 | ∴ 30 | 264 | |
| Dilemma Vehicles (#) | 0 | 0 | 5-1.00 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Queue Length 50th (ft) | 7. | 52 . | | 88 | ``1 35 ` | | 33 | 137 | 0 | 47 | | |
| Queue Length 95th (ft) | 25 | 100 | | #149 | 226 | | #92 | 194 | 52 | #114 | 239 | W - W - 47 |
| Internal Link Dist (ft) | | 990 | | | 718 | | | 226 | | | 328 | |
| Turn Bay Length (ft) | | m we environment of the servi- | and the state of t | ewant a ann a farewhere ee me | ranne er er rom britiska ka | nerve nag a condition makes | -A. Jan 7 185 - | | | | | |
| Base Capacity (vph) | | 425 | 建进署 | a i ozolika, esperwiekse | 606 | | 00000000000000000000000000000000000000 | 1011 | 665 | 177 | 1596 | |
| Starvation Cap Reductn | and the second second | 0 | made and the course | 0 | 0 | or or approximate to the | 0 | 0 | 0 | 0 | 0 | 8 y |
| Spillback Cap Reductn | . 0 | 0 | | 0 | . 0 | | 0. | 0 | . 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | attack and delegation are as a second | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.16 | 0.35 | | 0.76 | 0.66 | | 0.61 | 0.68 | 0.45 | 0.63 | 0.82 | |
| | | | | | | | | | | | | |

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Pretimed Maximum v/c Ratio: 0.82

Intersection Signal Delay: 27.6

Intersection LOS: C

Intersection Capacity Utilization 63.9%

ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 10: Military Rd S & S 188th St

g1
g2
g3
g4

| | † | 7 | 4 | Ţ | 4 | t | | | | | |
|--|----------------------|---------------------------------------|-------------------|--------------------------------|--|-------------------------------|----------------------------------|---|---|--|--------------------|
| Movamental actions | NET | NEGRE | SBL | Sparing | | SWE | | | | | |
| Lane Configurations | ^ } | a areyviji | ্ব ০০জজ | ^ | Cina | * 3-11-3-98-198-198 | . Den de koorden | 200 M 50 5 | To great source | | s r fress |
| Sign Control Grade | Free 0% | to de la serie | | Free 0% | Stop 0% | | er Serri Aren. Georgia | | | | . Wilds |
| Volume (veh/h) | 1753 | 0 | 0 | 1444 | . ,0 | 0 | | 1 (1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 | | | 4185 |
| Peak Hour Factor Hourly flow rate (vph) | 0.92 1905 | 0.92 | 0.92 0 | 0.92 1570 | 0.92 0 | 0.92 0 | Tales e. | thoughts to | in days X - | *** | |
| Pedestrians | , I and | ::\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | Ų | . 1210. | ∜ ,∪ % | SALE DAY | | | | | 10 si 10 |
| Lane Width (ft) | | | | H. | V. T. | | | | # M2 | i janga | |
| Walking Speed (ft/s) Percent Blockage | erengagi keri | . 121 - | n ngwysta | 401 IN 4419 | an an agai | ur sakara (g | アダポスで多いとと | 1 . 50.934.63 | elekî Gê arî Pêle | Mary No. 1983 | |
| Right turn flare (veh) | n si kasik | \$ 97 Products | | | The 18 18 18 18 18 18 18 18 18 18 18 18 18 | | With and Edition | | Jakalik P | tak di Perdidi | Parasi N |
| Median type | | | | | None | Para. | Kars, | | | | |
| Median storage veh) Upstream signal (ft) | | | KACEUK | 244 | | - 80%4178355 | | Surviva M | | vasi in | 138.W. |
| pX, platoon unblocked | fühati Niberterius | tratification of a | erra erakiri | | 0.76 | | receive we can be | | UAPERNI SETOL | | To an Original Per |
| vC, conflicting volume | | | 1905 | | 2690 | 953 | | | | ZW. | |
| vC1, stage 1 conf vol vC2, stage 2 conf vol | | | | | i Vistavski | | | | | | t je gr |
| vCu, unblocked vol | entre de la completa | | 1905 | general grand and an extension | 2906 | 953 | | a Sizingsewower | and the second second | Note 1 | |
| tC, single (s) tC, 2 stage (s) | | | 4.1 | | 6.8 | 6.9 | | | | | |
| tF (s) | | Kina h | 2.2 | et King PV Ivia – Kilokula | ∂ 3.5 | 3.3 | | | i de la companya de La companya de la co | | 1100 |
| p0 queue free % | en Kosepata et et e | | 100 | | 100 | 100 | Swife and find the months of the | s of Standing on the | HEREN TOPALERON | nemovaluitivo iki | 1941 |
| cM capacity (veh/h) | | | 308 | | 9 | 260 | | | | | Gara. |
| Volume Total | NE 1270 | NB 2 635 | 0 | 785 | 7 8 5 | 0 | 0 | | | | 44056 |
| Volume Left | 0 | ု ပသာ 0 | 0 | ္ (ဝ၁ 0 | ∵,763 0 | 0 | 0 | | | | |
| Volume Right | 0 | 0 | 0 | 0 | 0 * | 0 | » O. | | | | 料系统 |
| cSH Volume to Capacity | 1700 0.75 | 1700 0.37 | 1700 0.00 | 1700 0.46 | 1700 0.46 | | 1700 0.00 | | nan kana | ************************************** | |
| Queue Length 95th (ft) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 27654431519 | | enta gasti, |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | Marking. | | | |
| Lane LOS Approach Delay (s) | 0.0 | | 0.0 | | | A 0.0 | A | 906.4 <u>39</u> | | | |
| Approach LOS | er you that the se | | one de la company | rancurates", | . () (31) (3) (3) (3) | A | nara Cultural | er en | KA SEKATETE | | r AOVEAN |

0.0

15

Intersection Capacity Utilization 51.8% ICU Level of Service A

| 2/17/2005 |
|-----------|
| Page 1 |

nicisisalor sinninkuy

Analysis Period (min)

Average Delay

| | ۶ | | - | 1 | 4 | • | 4 | † | 1 | 1 | Ţ | 1 |
|-------------------------|----------------|--|--|------------------|--------------------------|---------------------------------|-------------------|----------------------------|------------------------------------|---------------------------------------|---------------------|--------------------|
| Laine Giroup (1987-248) | E E L | - (18) | EBR | WBL | W/E/I | WBR | NBJ | r) (C | NBR | SBL | Sign | SEF |
| Lane Configurations | ¥ | ^ | | | ^ | 7 | 75 | 4 | | | · | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Turning Speed (mph) | 15 | 1. 18. | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1 March | | | 14 | | 0.850 | | 0.936 | | | | 1. 1. 1 |
| Flt Protected | 0.950 | | | | | SOFT SEE | 0.950 | 0.972 | | | | |
| Satd. Flow (prot) | 1770 | 3539 | 0 | 0 | 3539 | 1583 | | | 0 | ⊹ 0 | 0 | 0 |
| Flt Permitted | 0.950 | | -A | | aranda da | " - " क्वत्ता " | 0.950 | 0.972 | , | | | ₹ |
| Satd. Flow (perm) | | 3539 | 0 | 0 | 3539 | 1583 | 1681 | | វង់ទាំង 🛈 🛚 | · · · · · · · · · · · · · · · · · · · | 0 | . 0 |
| Right Turn on Red | 1,535 751 | or the first trans | Yes | | , | Yes | Manager Tag St. 1 | | Yes | Ville Teas | , s = 52 + ₹. | Yes |
| Satd. Flow (RTOR) | 经重新证 | 18 18 18 18 18 18 18 18 18 18 18 18 18 1 | | | | 580 | Siaffi. | 42 | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Link Speed (mph) | | 30 | | e ji terasiya e | 30 | | | 30 | | | 30 | 14 3 V |
| Link Distance (ft) | . 14/14/14 | 650 | | and the sales | 244 | 198-34 <u></u> 34.g %) | J. 75 | 835 | 90 (4%) 11%, 117 | | 894 | TWO NOTES |
| Travel Time (s) | | 14.8 | | | 5.5 | | | 19.0 | | HANNE S | 20.3 | MANGS. |
| Volume (vph) | 367 | 1362 | 0 | 0 | 874 | 912 | 397 | ≘≘ yaraw ada ∙ 1 | 107 | 0 | 0 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 399 | 1480 | 0 | 0 | 950 | 991 | 432 | 1 | 116 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 399 | 1480 | 0 | 0 | 950 | 991 | 276 | 273 | | 0 | 0 | 0 |
| Turn Type | Prot | | | | war in the transfer | Perm | Perm | | * . * . | Tomb C. | | •, |
| Protected Phases | 7 | 4 | | | 8 | | | 2- | 3.334 | | | |
| Permitted Phases | | | | | | 8 | 2 | | | | -5:- | ••• |
| Total Split (s) | 22.0 | 59.0 | 0.0 | 0.0 | 37.0 | 37.0 | 21.0 | 21.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Act Effct Green (s) | 18.0 | 55.0 | | ****** | 33.0 | 33.0 | 17.0 | 17.0 | | | | |
| Actuated g/C Ratio | 0.22 | 0.69 | | | 0.41 | 0.41 | 0.21 | 0.21 | | | | y Yak |
| v/c Ratio | 1.00 | 0.61 | | | 0.65 | 1.00 | 0.77 | 0.73 | | *1000 | | . , , |
| Control Delay | 79.6 | 8.0 | | | 21.5 | 39.9 | 46.3 | 37.8 | | | | |
| Queue Delay | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | 0.0 | | | | |
| Total Delay | 79.6 | 8.0 | and the control of th | | 21.5 | 39.9 | 46.3 | 37.8 | | | | |
| LOS | Ε | Α | | | C | D | D | D | | | | |
| Approach Delay | | 23.2 | | | 30.9 | | | 42.1 | | | | a Mada Mga Naja |
| Approach LOS | | С | | | С | | | D | | | | |
| Stops (vph) | 309 | 666 | | | 672 | 402 | 223 | 189 | | | | |
| Fuel Used(gal) | 10 | 16 | | | 9 | 11 | 5 | 5 | | | | |
| CO Emissions (g/hr) | 726 | 1123 | | | 643 | 794 | 369 | 322 | | | | |
| NOx Emissions (g/hr) | 141 | 218 | | | 125 | 155 | 72 | 63 | | | | |
| VOC Emissions (g/hr) | 168 | 260 | | | 149 | 184 | . 86 | 75 | | | | |
| Dilemma Vehicles (#) | 0 | 0 | orar villasi ili | | 0 | 0 | 0 | 0 | TO TOTAL STATE OF THE | an on analysis 11 | San Bud Lawrence of | |
| Queue Length 50th (ft) | | A 40 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | PARE | 2.4 | 194 | 249 | | 113 | | | | |
| Queue Length 95th (ft) | #378 | 231 | | | 258 | #563 | #261 | #229 | ic. or errorat | to the contraction of | | 79 E 4 . |
| Internal Link Dist (ft) | | 570 | | | 164 | | | 755 | | | 814 | |
| Turn Bay Length (ft) | and the second | eer to a las above | e 1 | oe vitinia | ★1 1 10 10 10 245 | z us — tan Liberta design | Standards or Art | 000mm | A constitution of the constitution | or answerence to | | State St. |
| Base Capacity (vph) | | 2433 | | n wi | 1460 | 5"14" N. 600 ST. V. S. A. A. A. | | 375 | | | | r fal |
| Starvation Cap Reductn | | 0 | gody in process in | بالمحتول والمعال | 0 | 0 | 0 | 0 | restant to the con- | g , es , disse | . N. Janes Jakob | |
| Spillback Cap Reductn | <u>o</u> . | TO THE PROPERTY OF THE PARTY OF | H. N.S. | | There is a managed shown | | | \$\$\$, 0 7 | Tiki (| | | |
| Storage Cap Reductn | 0 | 0 | nd Lyanese tii 1 | s In our | 0 | 0 | 0 | 0 | , et jos gradi i dos | timenejastis nive | المعارية والمساورة | |
| Reduced v/c Ratio | 1.00 | 0.61 | | | 0.65 | _《 1.00 | 0.77 | 0.73 | | | Staffil. | |
| | | | | | 02.000 | | | | | | | |

Area Type: Other

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green

Control Type: Pretimed Maximum v/c Ratio: 1.00 Intersection Signal Delay: 29.0

Intersection LOS: C

Intersection Capacity Utilization 101.1%

ICU Level of Service G

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite. Queue shown is maximum after two cycles:

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: S 188th St & I-5 NB Ramp

| opins and mases. | 7. O TOOLIT OF A 1-5 TAB TRAINP | |
|---|---|-----------|
| ⋖ ∱ _2 | as | · |
| 1 82 | | |
| al april 2011. Libertalisti (fare di regio esti ling) estile pre di palente sittà e | Supplied Application of the Control of the Con | |
| | ₽ 7 | 28 |
| | | |

| | | → | * | • | 4 | 4 | 1 | † | ~ | 7 | | |
|-------------------------|--|------------|--------------------------|--|---------------------------------------|--|--|----------------------|--------------------|-----------------------------------|-----------------------|---------------|
| Câne Grouppe 🧦 . | (Figi | EBT | EBR | W BE | WET | SWER | MBL | Mat | NBR | Sigile | SET | SEF |
| Lane Configurations | 7 | ĵ > | _ | 44 | ₽ | | * | ተተ | 7 | ሻ | ተተሱ | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Turning Speed (mph) | 15 | | . 9 | 15 | * * * * * | 9 | 15 | | 9 | 15 | | 9 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 0.91 |
| Fit | | 0.992 | | | 0.965 | 5 to 1 d | | 1 3 4 5 | 0.850 | | 0.996 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | ** *** * * * | a Saraha | 0.950 | | |
| Satd. Flow (prot) | 1770 | 1848 | 0.4 | 3433 | 1798 | 0 | | 3539 | 1583 | | 5065 | 0 |
| Flt Permitted | 0.950 | 7. 7 | | 0.950 | | | 0.950 | . Printer of | | 0.950 | | |
| Satd. Flow (perm) | | 1848 | 0 | 3433 | 1798 | 0. | 1770 | 3539 | 1583 | 1770 | 5065 | 0 |
| Right Turn on Red | 11.5 | , | Yes | T | | Yes | t Staden | 1.044.00.000 | Yes | A ANDREA | , | Yes |
| Satd. Flow (RTOR) | | 4 | 47.7% | | 23 | | | | 298 | | 6 | calle. |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Link Speed (mph) | | 30 | 1 - \$4465 | | 30 | | 25 7446 | 30 | | | 30 | |
| Link Distance (ft) | - W. W. | 1070 | | \$ 40.0 | 798 | Migare Maria | . + 89948TXB1 | 306 | ki livibik | . Will 1 11 | 408 | |
| Travel Time (s) | | 24.3 | | | ∂ 18.1 | | | 7.0 | | NOSECUL | ⊹ 9.3° | ta state |
| Volume (vph) | 15 | 128 | 7 | 378 | 280 | 86 | 71 | 630 | 274 | 103 | 1165 | 34 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 139 | 8 | 411 | 304 | 93 | 77 | 685 | 298 | 112 | 1266 | 37 |
| Lane Group Flow (vph) | 16 | 147 | 0 | 411 | 397 | 0 | 77 | 685 | 298 | 112 | 1303 | Ō |
| Turn Type | Prot | | .~ | Prot | is entre: | | Prot | · LA TILLER | Perm | Prot | .: 19,55 | • |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 100 | 6 | 4. |
| Permitted Phases | . * | | | - 11.3 | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | Testa Na | . w <u>a</u> rk | araba T % | 2 | ar i tagasa sa s ^a ria | | |
| Total Split (s) | 8.0 | 20.0 | 0.0 | 15.0 | 27.0 | 0.0 | 9.0 | 24.0 | 24.0 | 11.0 | 26.0 | 0.0 |
| Act Effct Green (s) | 4.0 | 16.0 | | 11.0 | 23.0 | ************************************** | 5.0 | 20.0 | 20.0 | 7.0 | 22.0 | |
| Actuated g/C Ratio | 0.06 | 0.23 | giri man | 0.16 | | | 0.07 | 0.29 | 0.29 | 0.10 | 0.31 | y y s |
| v/c Ratio | 0.16 | 0.35 | | 0.76 | 0.66 | | 0.61 | 0.68 | 0.45 | 0.63 | 0.82 | |
| Control Delay | 35.1 | 24.7 | e Silve | 39.1 | 25.0 | | 54.4 | 26.2 | 5.2 | 48.4 | 27.2 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0:0 | THE WAY A TO MAKE | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| Total Delay | 35.1 | 24.7 | 51.00 | 39.1 | 25.0 | CONTAC | 54.4 | 26.2 | 5.2 | 48.4 | 27.2 | 1 (45.45) |
| LOS | D | C | V17 | D | C | 19 8019111 1.2.1 | D | С | A | D | С | |
| Approach Delay | and the second s | 25.8 | | | 32.2 | arkt | | 22.3 | 74. X | HWK! | 28.9 | |
| Approach LOS | | С | | | Ć | | THE WATER PARTY OF THE PARTY OF | С | | | С | |
| Stops (vph) | 18 | 107 | | 340 | 288 | | 63 | 535 | 34 | 93 | 1043 | |
| Fuel Used(gal) | 0 | 2 | | 7 | 6 | 12 17 17. 14. | 2 | 11 | 3 | 2 | 16 | |
| CO Emissions (g/hr) | 23 | 168 | | 506 | 400 | | 116 | 770 | 176 | 130 | 1134 | |
| NOx Emissions (g/hr) | 5 | 33 | | 99 | 78 | | 23 | 150 | 34 | 25 | 221 | |
| VOC Emissions (g/hr) | 5 | 39 | 東西海洋 | 117 | 93 | | 27 | 178 | 41 | 30 | 263 | |
| Dilemma Vehicles (#) | 0 | 0 | The second of the second | 0 | 0 | C ** C * | 0 | 0 | 0 | 0 | 0 | |
| Queue Length 50th (ft) | 7 | 52 | | 88 | 135 | | . 33 | 136 | : V (0 | 47 | 186 | |
| Queue Length 95th (ft) | 25 | 100 | | #148 | 226 | | #92 | 192 | 52 | #114 | 239 | |
| Internal Link Dist (ft) | | 990 | y Hill | | 718 | | 14. A. T. A. | 226 | | | 328 | 1317 13827 |
| Turn Bay Length (ft) | | | | | | , | | a 2 months and | 4.000 100 100 1000 | | The second section of | |
| Base Capacity (vph) | 101 | 425 | | 539 | 606 | | 126 | 1011 | 665 | 177 | 1596 | |
| Starvation Cap Reductn | 0 | 0 | • | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | · 0 | 0 | | 0 | 0 | . 0 | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | |
| Reduced v/c Ratio | 0.16 | 0.35 | | 0.76 | 0.66 | | 0.61 | 0.68 | 0.45 | 0.63 | 0.82 | |
| | | | | ACCOUNT OF THE PROPERTY OF THE | | | | 900 | M. T. C. | | | este e |

Area Type: Other

Cycle Length: 70

Actuated Cycle Length: 70

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Pretimed Maximum v/c Ratio: 0.82

Intersection Signal Delay: 27.5 Intersection Capacity Utilization 63.8%

Intersection LOS: C ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

10: Military Rd S & S 188th St Splits and Phases:

| | ۶ | → | \rightarrow | 1 | , ← | • | 4 | † | ~ | - | 1 | 1 |
|---|---|---------------------------------|--------------------------|---|------------------------------|--|--|--|--------------------------|--|---------------------------------------|--|
| Lane Greige day 2 | Eile | E E T | HER | WEL | WBT | WBR | NR. | 3 N B T | NBR | \$3:) | S State | 889 |
| Lane Configurations | 7 | ^ | | | ^ | 7 | ሻ | 4 | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Turning Speed (mph) | 15 | PORT | 9 | 15 | | . 9 | 15 | | 9 | 15 | | 9 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fn | | | r Prije | | | 0.850 | | 0.930 | | | | |
| Flt Protected | 0.950 | | | | | . Si da dinana | 0.950 | 0.974 | | | | |
| Satd. Flow (prot) | 1770 | 3539 | 0 | 0 | 3539 | 1583 | Albertan Karaker Britan Grander | 1603 | . 0 | . 0 | 0 | 0 |
| Flt Permitted | 0.950 | | | . a sa sa sa sa sa sa | | i en la casa de la cas La casa de la casa de | 0.950 | 0.974 | Ye istalish a yat | manus za. | 25 J. S. 4 J. | |
| Satd. Flow (perm) | 1770 | 3539 | . 0 | 0 | 3539 | A Committee of the state of | 1681 | 1603 | · (0) | . 0 | 0 | 0 |
| Right Turn on Red | viadvitus del della | mit gaguski eging. | Yes | . Igrepografia | 1 No. 10 (1 12 est | Yes | egor jaki-endeka. | | Yes | sarra di Maria di A | Constanting. | Yes |
| Satd. Flow (RTOR) | | 4.00 | | | | 544 | | 16 | A AACES | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | No Arre | | 30 | |
| Link Distance (ft) | | 650 14.8 | 87-12 3 32 6 | | 244 5.5 | 10.15 2° X.549 000 | B295-2026 | 835 19.0 | erweve parov | San San San | 894 | 08/00/00/00 |
| Travel Time (s) | FFC | 2064 | ^ | 0 | າວ.ວ <i>ະ</i> 1340 | 1399 | 602 | 19.0 2 | 177 | | 20.3 0 | |
| Volume (vph) Peak Hour Factor | 556 0.92 | 0.92 | 0 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | ି 0.92 ୍ | 0 0.92 | ି 0.92 | ୍ଦ 0.92 |
| Adj. Flow (vph) | 604 | 2243 | 0.52 0 | | 1457 | 1521 | 654 | . 0.52) 2 | 0.92 192 | 0.92 0 | . U.ƏZ 0 | ુ ∪.૭∠ ∩ |
| Lane Group Flow (vph) | | 2243 | 2000 2000 | 0 | | | 439 | 409 | 30 | 0 | , , , , , , , , , , , , , , , , , , , | 0 |
| Turn Type | Prot | 2243 | , <u> </u> | 4.18.19 4 8 | * i401 | Perm | Perm | | 13.66% U.S. | 21 - V. | | W. A. C. |
| Protected Phases | 1 10t | 4 | | | 8 | | | • | JOSÉ DAS | Carlos Filter | 200 | . 4 M |
| Permitted Phases | atan da Ma | i i i sa ka e Ta uri | h e dha | Türki İlliyeli İ | | 8 | 2 | U 4.2.≅∶ | | With Property | Nith Last Silf | |
| Total Split (s) | 33.0 | 98.0 | 0.0 | 0.0 | 65.0 | 65.0 | 32.0 | 32.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Act Effct Green (s) | 29.0 | 94.0 | 0.0 | 0.0 | 61.0 | 61.0 | 28.0 | 28.0 | **** *** ** | 3-3- 9-9 - | . | 0.0 |
| Actuated g/C Ratio | 0.22 | 0.72 | | | 0.47 | 0.47 | 0.22 | 0.22 | | | | N. Switz |
| v/c Ratio | 1.53 | 0.88 | kimi vi yiftedi | 0417.1548 | 0.88 | 1.47 | 1.21 | 1.14 | 96 15 1 587W.Gr | ADALA AY | i i besti kan | entālai ielu |
| Control Délay | 285.8 | 18.9 | | | 38,5 | | | 136.0 | | | | |
| Queue Delay | 0.0 | 2.6 | (Virtual (1997) (1987),a | FRANCISKAN | 0.0 | 0.0 | 0.0 | 0.0 | ISBN CARPLOST | Administration | ده يا څو څه ده که د د د د | en en en en en en en en en en en en en e |
| Total Delay | 285.8 | 21.4 | | \$385.A | 38.5 | 239.1 | 161.9 | 136.0 | | | | 78.74 |
| LOS | F | C | gor issuativ speci | 1 1861 - 15 1 1812 - 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | D | F | F | F | | Describe alamen. | a | ್. ಕಪ್ |
| Approach Delay | | 77.5 | MODES. | | 141.0 | | | 149.4 | | | | |
| Approach LOS | */ P.W. & *LL. & *LL. & *LL. *LL. *LL. *LL. *L | E | | V.C. 2 5 | F | | ************************************** | F | | | | |
| Stops (vph) | 402 | 1505 | | | 1162 | 734 | 327 | 301 | | | | |
| Fuel Used(gal) | 39 | 32 | | | 19 | 75 | 18 | 15 | | | | |
| CO Emissions (g/hr) | 2706 | 2211 | | | 1361 | No. 100 to 100 t | 1241 | | | | | |
| NOx Emissions (g/hr) | 527 | 430 | | | 265 | 1018 | 241 | 197 | | | | |
| VOC Emissions (g/hr) | 627 | 512 | | | 315 | 1212 | 288 | 235 | | | | |
| Dilemma Vehicles (#) | 0 | 0 | | | 0 | 0 | 0 | 0 | | | | |
| Queue Length 50th (ft) | | 672 | ela le | | | ~1513 | ~475 | Con-consecution man about a | | | | |
| Queue Length 95th (ft) | #941 | 805 | MIN V . M. C. | and a second | | #1783 | #694 | #632 | S. M | NAME OF STREET | | |
| Internal Link Dist (ft) | | 570 | | renigi G | 164 | | | 755 | | 子系入 | 814 | |
| Turn Bay Length (ft) | ng saga ang p <u>an</u> kata <u>ka</u> astoo | والمواجية والمساوية | ST SANS A LINE COMP | sa takura Samura sa | o sing n <u>a ma</u> madaken | napase _ t= tento | 8887 <u>=</u> 12121 | a gogara <u>ana ana a</u> | inggefand sittle sec. 15 | No motore con const | esta i en est i i est est | Toperio a s |
| Base Capacity (vph) | Commence of the contract of the contract of the | 2559 | | | 1661 | 1032 | | | | | | |
| Starvation Cap Reduct | | 209 | y garan kandeka | gilgi Tinan sa s | 0 | 0 | 0 *********** | 0 | はできなないないかっと … | on substitution | granik teragai kanna | er i nestustian |
| Spillback Cap Reductn | Second Contract | , O | H-TH | | 0, | , Q | , O | , O | | | | |
| Storage Cap Reductn | 0 | 0 | on park seed | 80 83 QCC / C B | 0 | 0 | 0 | 0 ******* | co Bragnia Menio | s o mediae No | ing open a tex | - 1427 (1911) |
| Reduced v/c Ratio | 1.53 | 0.95 | | | .88.0 | _1.47\ | (1.2 1) | 1.14 | | | | |
| \$100 ACCUSATE OF THE SECOND SE | PROPERTY AND INCIDENCE OF THE | NOTED COMMISSION OF SHE | | A STATE OF THE OWNER, WHEN THE PARTY OF THE | | NET AND DESCRIPTION OF THE PARTY OF | encompanie Consensation of | CARGOODING COMMISSION OF COMMI | and the second second | March Commission Commi | CANADAMINA MARKETTA | APPROXIMATE AND A |

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green

Control Type: Pretimed Maximum v/c Ratio: 1.53

Intersection Signal Delay: 115.0 Intersection Capacity Utilization 149.6% Intersection LOS: F. ICU Level of Service H

Analysis Period (min) 15

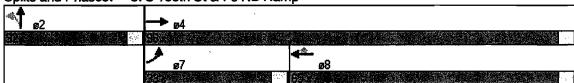
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles:

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles:

Splits and Phases: 3: S 188th St & I-5 NB Ramp



| | ۶ | → | • | • | ← | 4 | 4 | † | 1 | - | ļ | 4 |
|--------------------------|--|---|-----------------------|----------------------------|---|--|------------------------------|------------------------|--------------------------------|--------------------------------|------------------------|--|
| Marie Group (2018): | EBIS | e EBT | ESE | = W(B)L | Wat. | WER | e NBL | Neit | NEG | SIBIL | 981 | (S)3)P |
| Lane Configurations | A | | | 44 | ĵ > | | 7 | ተተ | 7 | ሻ | ተተቡ | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Turning Speed (mph) | 15 | S. 153.5 | 9 | 15 | | 9 | 15 | | 9 | 15 | | 9 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 0.91 |
| Fri | | 0.992 | | | 0.965 | Two Tyres | | | 0.850 | | 0.996 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | 201 STANDARD | 0.950 | | |
| Satd. Flow (prot) | 1770 | 1848 | 0 | 3433 | 1798 | 0. | 1770 | 3539 | 1583 | 1770 | 5065 | 0 |
| Flt Permitted | 0.950 | *** | | 0.950 | | | 0.950 | | , | 0.950 | | |
| Satd. Flow (perm) | 1770 | 1848 | 0 | 3433 | 1798 | 0 | 1770 | 3539 | 1583 | 1770 | 5065 | 0 |
| Right Turn on Red | | 4 1 % 1 % 1 % 1 % 1 % 1 % 1 % 1 % 1 % 1 | Yes | | e. ee sankiwee. | Yes | | | Yes | V 1891. 1951 7 , | | Yes |
| Satd. Flow (RTOR) | arri. | 3 | | | 18 | | | | 451 | | 6 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Link Speed (mph) | | 30 | | | . 30€ | a n'a s | | 30 | | | 30 | DESTRUCTION OF THE PERSON OF T |
| Link Distance (ft) | Province of the control of | 1070 | in the packing. | en up vælift i hiden hade. | 798 | material states of | , the Strategical | 306 | 2+ -2+ 3403×4-000 | costillar od sa pita. Au | 408 | |
| Travel Time (s) | | 24.3 | | | 18.1 | | | 7.0 ° | | | 9.3 | |
| Volume (vph) | 23 | 194 | 11 | 574 | 424 | 130 | 108 | 962 | 415 | 156 | 1769 | 52 |
| Peak Hour Factor | 0.92 | 0.92 | Ø 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 25 | 211 | 12 | 624 | 461 | 141 | 117 | 1046 | 451 | 170 | 1923 | 57 |
| Lane Group Flow (vph) | 25 | 223 | 0 | 624 | 602 | 0 / | 117 | 1046 | 451 | 170 | 1980 | <u>ે</u> 0 |
| Turn Type | Prot | | | Prot | er - Tawa | repart rate. | Prot | in i demonstra | Perm | Prot | ⊒10 K≒™ . | ** ******** |
| Protected Phases | · | 4 | | 3 | 8 | 3446 | 5 | 2 | | 85575 | 6 | |
| Permitted Phases | and Palling of | 7 (Bar) | .14.4 218 | i waste tij Stani | | ead Aughter St | sections in th | 5 8 3 00 0 | 2 | run Güser Mil | tet urin Zan | s sie |
| Total Split (s) | 8.0 | 20.0 | 0.0 | 21.0 | 33.0 | 0.0 | 10.0 | 36.0 | 36.0° | 13.0 | 39.0 | 0.0 |
| Act Effct Green (s) | 4.0 | 16.0 | . e x - 33.55v | 17.0 | 29.0 | -φa Ytπu | 6.0 | 32.0 | 32.0 | 9.0 | 35.0 | |
| Actuated g/C Ratio | 0.04 | 0.18 | in Heri | 0.19 | 0.32 | | 0.07 | 0,36 | 0.36 | 0.10 | 0.39 | |
| v/c Ratio | 0.32 | 0.67 | White Dally de | 0.96 | 1.02 | \$18-599Ex38*9 | 0.99 | 0.83 | 0.53 | 0.96 | 1.00 | t et Wassel |
| Control Delay | 52.4 | 45.5 | 40AV | 64.9 | 72.6 | Wara d | 126.1 | 33.6 | | 101.2 | 49.5 | n 2135 |
| Queue Delay | 0.0 | 1.1 | 45 . 6885 () | 6.5 | 0.0 | Salba XX | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | A Da Ala |
| Total Delay | 52.4 | 46.5 | | 71.5 | 72.6 | | 126.1 | 33.6 | | 101.2 | 50.1 | STAGAS. |
| LOS | D | D | na Chesares Is | Ε | F (= : 500 | #40.88 PM 27 | F | C | Α | F | D | k Yoy Yo |
| Approach Delay | | 47.1 | | | 72.0 | | | 32.2 | | | 54.2 | organis and oastis salar |
| Approach LOS | Martin Transfer | D | B1504., . 424 | | ##. ! Æ!Y @! E | | Ser (S) Willes | C | | e tembrili 1953 i i i | . О <u>-</u> . D | n Pulgerik |
| Stops (vph) | 25 | 185 | | 508 | 459 | | 87 | 839 | 38 | 130 | 1606 | rijaja K |
| Fuel Used(gal) | 1969 & TM .II 1 | 5 | 0.50 to 1.500 1.660 | 14 | 14 | * *********************************** | 2002160 4 | 18 | 4 | 4 | 33 | of the states |
| CO Emissions (g/hr) | 40 | 324 | | 976 | 991 | | - 284 | 1286 | 258 | 309 | 2308 | CNA XA |
| NOx Emissions (g/hr) | 8 | 63 | | 190 | 193 | | 5 5 | 250 | 50 | 60 | 449 | SEACHLINE H |
| VOC Emissions (g/hr) | 9 | 75 | | 226 | 230 | | 66 | 298 | 60 | 72 | 535° | |
| Dilemma Vehicles (#) | 0 | 0 | | 0 | 0 | | 0 | , <u> </u> | 0 | Ō | 0 | ER-MARK |
| Queue Length 50th (ft) | 14 | 118 | THE STA | 182 | ″~344′ | | 68 | _ 282 | 0 | * 98 | ~406 | LEMANE |
| Queue Length 95th (ft) | 40 | #207 | 2 F. Sant J. S. S. S. | #290 | #565 | | #1 7 7 | 364 | 62 | #223 | #532 | E(CA) The P |
| Internal Link Dist (ft) | i Kananasi | 990 | | # L 30 | 718 | | π.// ***** | 226 | 77.402% | πΔΕΟ | #332 328 | |
| Turn Bay Length (ft) | erents | | KAT KIKE | | V. 7.19% | radars (f | SAN WARE | ~ ~ ~ ~ ~ . . . | | CHENT | ر بروم | the constitution |
| Base Capacity (vph) | 79 | 331 | HEGGG BA | 648 | 592 | | 118 | 1258 | 853 | 177 | 1973 | Solder. |
| Starvation Cap Reducting | | | | . 040 0 | "Market - C. C. Calle, present con | nevii tekk | a radiates (Alipsa or des Sa | 1230 0 | A will a grant with the second | is mallion in resource for the | 2711 1 101 8WW 28 WW 1 | 75.491.5 |
| Spillback Cap Reducting | 0 0 | 0 22 | (1881) XXXX | 22 | 0 0 | 0)9 57.2.40 033 | 0 | ∵ ′0` | 0 - 20 | 0 - ∞ 0 0 | 0 ∴ | Walley De |
| | The second section of the second section of the second section of the second section s | Contraction Contractions | | 2021 - 1000-1100 | SECRETARIA DE LA CONTRACTION DEL CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE LA CONTRACTION DE | eagy (A.) | ONCORP. THE | 1000 1000 P 500000 | energia, i supassi čaniki | San Carallel Maria | | 2333 |
| Storage Cap Reductn | <u>0</u> | 0 - 0.72 | and the contact | U ଅଧିକାର | 0 1.02 | 33% (22-126-227 | 0 0.99 | 0 .0.83 | 0 ်ဂ ငေ | 0 | ∪ | در الاستان واروادي در الاستان واروادي |
| Reduced v/c Ratio | 0.32 | U.14 | | | 1.02 | | ຸບ.ອອ | ് ഗ.രാ | 0.53 | 0.96 | 1.01 | |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Pretimed Maximum v/c Ratio: 1.02

Intersection Signal Delay: 51.3

Intersection LOS: D

막물이 가는 얼마를 가는 것이다.

Intersection Capacity Utilization 88.2%

ICU Level of Service E

Analysis Period (min) 15

Volume exceeds capacity, queue is theoretically infinite.

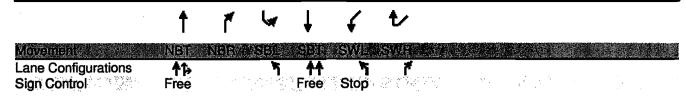
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles

Splits and Phases: 10: Military Rd S & S 188th St





| | ۶ | | • | • | - | • | 4 | † | - | - | ↓ | 1 |
|--|--------------------------------------|---|--|---------------------------------------|--|-------------------------|--------------------------------|--|--|------------------------|---|---|
| sagrojejajaja | 7 (5) | 557 | 200 | awsie. | 0743 | William. | | 1121 | NEE | - SE | | SEA |
| Lane Configurations | ሻ | ^ | _ | | ^ | 7 | ሻ | 4 | | _ | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Turning Speed (mph) | 15 | | 9 | 15 | | 9 | . 15 | | 9 | 15 | | `````` 9 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | | | | 0.850 | | 0.930 | idir | | | |
| Flt Protected | 0.950 | | 1.00 500 | The LINESAN | | . 27 DW | 0.950 | 0.974 | N N N N N N N N N N N N N N N N N N N | | | |
| Satd. Flow (prot) | 1770 | 3539 | 0 | · 0 | 3539 | 1583 | 1681 | 1603 | | 0. | 0 | 0 |
| Fit Permitted | 0.950 | en arabanas es | nober 🗝 | ignina ya <u>w</u> ata | .a a.e. | oge makenos | 0.950 | 0.974 | | | ner ne artika | a e cañal las |
| Satd. Flow (perm) | 1770 | 3539 | . 0 | 0 | 3539 | 1583 | 1681 | 1603 | | · 0 | . 0 | 0 |
| Right Tum on Red | nak i Masa Kar | re usanza ka | Yes | gagijatilyaayig | e conserva | Yes | i Tarek Varker | nasan a mas | Yes | 0418080%04686 | OT St. To device a cit | Yes |
| Satd. Flow (RTOR) | | | | | 4 00 | 551 | | 16 | | | | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 30 | 1.00 | 1.00 | 1.00 30 | 1.00 | 1.00 | 1.00 30 | 1.00 |
| Link Speed (mph) | | 30 650 | | | 244 | | | 835 | | | 894 | |
| Link Distance (ft) | ing pagagangan | 14.8 | | | 244 5.5 | | Karan-karan | ୍ଷ 19.0 | NYW BELIE | roeen neggere | ୍ଷ 20.3 | Parisans |
| Travel Time (s) Volume (vph) | 556 | 2064 | | ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ | 1362 | 1421 | 602 |) 19.0° 2 | 177 | 0 | 0 | 6 . S |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0,92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 604 | 2243 | 0. <i>32</i> | 0.52 | 1480 | 1545 | 654 | 0.5 <u>2</u> 2 | 192 | . U.JZ. 0 | . ပ.ခင္း 0 | , v. <u>ə</u> z 0 |
| Lane Group Flow (vph) | 604 | 2243 | · · · · · · · · · · · · · · · · · · · | 0. | | 1545 | 439 | _ 409° | | 0 | - 0 - 0 | 0 0 |
| Turn Type | Prot | SETVE | | NEAHA | 1414442 | Perm | Perm | | Kime X: | ili di Yel | 3 33,334 Y 1 9 | THE WAY |
| Protected Phases | ∵ | · 4 | | 56.58E. | 8 | | | . 2 | | . 16. N. N. | ulpyjaka | ere iso |
| Permitted Phases | rollog (gadi. <mark>5</mark> 1) ji r | PHIN GR. | a sissifi wita | | | 8 | 2 | ŝ PRELIZONIA (TRE). | AVA 668.11 | naste Admini | Si Statuturu er | Marin Se |
| Total Split (s) | े 32.0 | 98.0 | 0.0 | 0.0 | 66.0 | 66.0 | 32.0 | 32.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Act Effct Green (s) | 28.0 | 94.0 | NAMES AND STREET | LADA TITUES | 62.0 | 62.0 | 28.0 | 28.0 | er album Terr | a. Kata | . 90-7-7-20 | - 144 E E E E E E E E E E E E E E E E E E |
| Actuated g/C Ratio | 0.22 | 0.72 | | | 0.48 | 0.48 | 0.22 | 0.22 | | | | 1200 |
| v/c Ratio | 1.59 | 0.88 | നും ഒഴു കുറ | And the State of States | 0.88 | 1.48 | 1.21 | 1.14 | toer wattlederts A | lysian think to the se | The second of the Constant | - 5 · 10, 5 · |
| Control Delay | 309.9 | ⁄ 18.9 | | | 37.8 | 242.2 | 161.9 | 136.0 | | | the STA | |
| Queue Delay | 0.0 | 2.6 | | | 0.0 | 0.0 | 0.0 | 0.0 | Carriera Collinia | The Marie C | | *********** |
| Total Delay | 309.9 | 21.4 | | | 37,8 | 242.2 | 161.9 | 136.0 | | | | |
| LOS | F | С | | | D | F | F | F | | | | |
| Approach Delay | | 82.6 | | | 142,2 | | | 149.4 | | | | |
| Approach LOS | | F | w | مېرورد دهن د پورو | F | was a server and annual | erra i de la constanta | F | Sala Simula v | | SS: | |
| Stops (vph) | 395 | | | | 1178 | 744 | 327 | 301 | | | | |
| Fuel Used(gal) | 41 | 32 | is and a comment of the control of t | . Other made a sequence again | 20 | 77 | 18 | 15 | at The State of Laboratory | Townson, again they | Z na St. a trouting a metalogical temperature | يس د سمهوشين . |
| CO Emissions (g/hr) | 2894 | | | | Carlo da Sanda de Carlo de Car | 5375 | t from the relief of the total | 1015 | | | | Valid |
| NOx Emissions (g/hr) | 563 | 430 | uz Ammerzek 1480a | SN41-76028887 | 266 | 1046 | 241 | 197 | Sarata e e e e e e e e e e e e e e e e e e | .j.francii | a to Shipped and the | rdaubien variver |
| VOC Emissions (g/hr) | 671 | . 0000000000000000000000000000000000000 | | | ADD. COLLEGE WOOD CONCORD | 1246 | 288 | 235 | | | | HW. 7 |
| Dilemma Vehicles (#) | 0 | 0 | CL SHEET WA | - 1251 × 1245 | 0 | 0 | 0 | 0 | Migaros as a | ANDERSON DE | agradaen mentran | Man of per st |
| Queue Length 50th (ft) | | 672 | | | constructed a street was | ~1545 <i>®</i> | ~475 | 00000000000000000000000000000000000000 | | | | |
| Queue Length 95th (ft) | #953 | 805 | 2, VID 28085 | &-5471666 144 | | #1816 | #694 | #632 | erenia. Perenia | rative a eVite | ST-04 APP | 682.5° |
| Internal Link Dist (ft) | | 570 | | | 164 | | | 755 | www.fts.G | rasia Parisi | 814 | MDA-H |
| Turn Bay Length (ft) | 204 | 0550° | | | 1600 | 4040 | മല |) DEG | | DAGARIT - | : 1 179 Part 1 1 CEY | |
| Base Capacity (vph) Starvation Cap Reductn | | 2559 209 | | | 1688 | 1043 0 | ુ 36∠ 0 | no on 100, washing at some 5 th | | | | YSHINK |
| Spillback Cap Reductn | | 209 | | (85 35 41202 | 0 | 0 | · 0 | 0 0 | | Newspiles 1 | SMADAFAL | 48,772 det. |
| Storage Cap Reducting | 0 | 0 | | | 0 | υ. 0 | , y 0 | | anner de | | | -Righton |
| Reduced v/c Ratio | | ି 0.95 | | avezeke) | 0.88° | _ | - | 1:14× | PARAFORESTA | | 94671000 | |
| | 04 11 22 25 2 | : Y.44% | 85.0395(D-852) | ur distribiti | | W. T. | re 1:5.18 | solul y s | | are, continúis | 1mi/285/25/25/25 | |

| Peak Hour Factor 0.92 0.9 | L 24 | + + | |
|---|---|--|--|
| Sign Control Free Grade 0% Volume (veh/h) 2657 Peak Hour Factor 0.92 0.9 Hourly flow rate (vph) 2888 Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) | 19 (5) | COBT SWL | SWRIPS CONTROL OF SAME AND AND AND AND AND AND AND AND AND AND |
| Grade 0% Volume (veh/h) 2657 Peak Hour Factor 0.92 0.9 Hourly flow rate (vph) 2888 Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) | ሻ | <u> </u> | |
| Volume (veh/h) 2657 Peak Hour Factor 0.92 0.9 Hourly flow rate (vph) 2888 Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) | ** | Free Stop | |
| Peak Hour Factor 0.92 0.9 Hourly flow rate (vph) 2888 Pedestrians Ane Width (ft) Valking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) | 12 29 | 0% 0% 2189 29 | 76 |
| Hourly flow rate (vph) 2888 Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) | | 0.92 0.92 | 0.92 |
| Pedestrians ane Width (ft) Valking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) | 13 32 | | 83 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 |
| ane Width (ft) Valking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) | | | |
| Valking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type Median storage veh) | | | |
| Right turn flare (veh) Median type Median storage veh) | | | |
| fedian type fedian storage veh) | | | |
| Median storage veh) | | | |
| | | None | |
| Josueam Sionai (III) | | | |
| X, platoon unblocked | | 244 0.29 | |
| C, conflicting volume | 2901 | | 1451 |
| C1, stage 1 conf vol | 2001 | | # |
| C2, stage 2 conf vol | | | |
| Cu, unblocked vol | 2901 | 9390 | 1451 |
| C, single (s) | 4.1 | 6.8 | 6.9 |
| C, 2 stage (s) | | | |
| F (s) | 2.2 | 3.5 | 3.3 |
| 0 queue free % | 75 | 0 .enc.wite softwaren en ekkelen in wie | |
| M capacity (veh/h) | 124 | 0 | [20] |
|)ireición Eane # NB 1 NB | 2 584 | | SWILSW2 |
| | 76 32 | 1190 1190 | 32 83 |
| /olume Left 0 | 0 32 | 0 0 | 32 0 |
| torre chiliagrafia il interpreta (il 🕶 grapia Transpoli, tari, il il il il il il il il il il il il il | 13 0 00 124 | 0 0 1700 1700 | 0 83 0 120 |
| SH 1700 170 olume to Capacity 1,13 0.5 | | | 0 120 Em 0.69 |
| Queue Length 95th (ft) 0 | 0 24 | 0 0 | En 92 |
| | .0 43.7 | 0.0 0.0 | Em 84.0 |
| ane LOS | Ē | er er i minderskrivet allagener | |
| pproach Delay (s) 0.0 | 0.6 | 2 | 822.5 |
| Approach LOS | 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | The second second second second second second | F |
| niersection Summary | | | |
| Average Delay | 59.6 | | |
| ntersection Capacity Utilization | 85.2% | ICU Level | of Service |
| Analysis Period (min) | 15 | P - 38 x 2 C C C C C C C C C C C C C C C C C C | manuanan samatenakses sa tartu paresta taru taru paresta da alim paresta paresta paresta paresta paresta pares
Paresta paresta

1

Intersection Summary

Area Type: Other

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:, Start of Green

Control Type: Pretimed Maximum v/c Ratio: 1.59

Intersection Signal Delay: 117.9

Intersection LOS: F

Intersection Capacity Utilization 150.9%

ICU Level of Service H

Analysis Period (min) 15

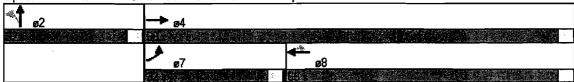
Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles

Splits and Phases: 3: S 188th St & I-5 NB Ramp



| • | ۶ | → | * | 1 | €_ | 4 | 1 | † | - | - | ↓ | 4 |
|--|--|--|--|---|---|---|---------------------------------|-------------------------|---------------------------------------|-----------------------------|--------------------------------|------------------------|
| LanesGroup (a.g., s. 45 | e Es | EET | EBR | · WBL | WeT- | WER | NBL | NET | NB)B | SBL | SBTM | SBR |
| Lane Configurations | ሻ | 4 | | ሻሻ | f) | | ካ | ተተ | 7 | 7 | ተተጉ | and the second section |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost Time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Turning Speed (mph) | 15 | | 9 | 15 | 1 100g Z | 9 | 15 | 1.44.35 | 9 | 15 | | 9 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.91 | 0.91 |
| Frt | | 0.992 | | | 0.965 | ME TO S | | | 0.850 | -15 B | 0.996 | |
| Flt Protected | 0.950 | | | 0.950 | | entire of the | 0.950 | | 21114 | 0.950 | 20 70 2 4 4 2 | |
| Satd. Flow (prot) | 1770 | 1848 | - O | 3433 | 1798 | · ` 0 | 1770 | 3539 | 1583 | 1770 | 5065 | √े ं 0 |
| Fit Permitted | 0.950 | ** ** * * | | 0.950 | particle therm years. | r, was terminal and a signal | 0.950 | t game and \$100 | · · · · · · · · · · · · · · · · · · · | 0.950 | 30.00.00 3.00 3.00 | |
| Satd. Flow (perm) | 1770 | 1848 | . 0 | 3433 | 1798 | . 0 | 1770 | 3539 | 1583 | 1770 | 5065 | . 0 |
| Right Turn on Red | | 50 i, 51 i 4 | Yes | er ter we brind aut er aus | Total of the control | Yes | 2011 - N. N. H | fatture see this | Yes | 1 945 M. NO, 8 G. 10 | and the second | Yes |
| Satd. Flow (RTOR) | . J. 44 | 3 | | | 18 | | | | 458 | Transport | 6 | |
| Headway Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Link Speed (mph) | | 30 | 4.65 | | 30 | | | ⊘ 30 | | | 30 | |
| Link Distance (ft) | | 1070 | Laman 98. | 2011 - 12 1 1 1 1 1 2 2 2 2 2 2 1 1 2 2 2 2 | 798 | . 36 41-878-11 (1995) (F | er ale sati medi | 306 | , en len i egi igade | 1.77 (44)31/31/3 | 408 | di kili in ann |
| Travel Time (s) | | 24.3 | | | 18.1 | | | 7.0 | | | 9.3 | |
| Volume (vph) | 23 | 194 | 11 | 574 | 424 | 130 | 110 | 976 | 421 | 156 | 1769 | 52 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 25 | 211 | 12 | 624 | 461 | 141 | 120 | 1061 | 458 | 170 | 1923 | 57 |
| Lane Group Flow (vph) | | 223 | 0 | 624 | 602 | 0 | a see state of the second | 1061 | 458 | 170 | 1980 | 0 |
| Tum Type | Prot | n in sour ATR 3 | 1.2 May 22 | Prot | i, a Marija e e calo aliza i politicali | ar security of the pe | Prot | Collection of the sales | Perm | Prot | a in the Medical Table (1995). | . 1.8 ./K |
| Protected Phases | 7 | 4 | 医白藤 | 3 | 8 | | ∂ 2.5 | 2 | | 1 | 6 | 7.44 |
| Permitted Phases | 200 | | . 1797 | and a dealth at the effe | - Bert Schoolsett | uri indea i un ricinar | The Street Alba Daniel | 31 (20) | 2 | 2 # \$4% | Tarting (c) | To the Wallet |
| Total Split (s) | 8.0 | 20.0 | 0.0 | 21.0 | 33.0 | 0.0 | 10.0 | 36.0 | 36.0 | 13.0 | 39.0 | 0.0 |
| Act Effct Green (s) | 4.0 | 16.0 | , 31 | 17.0 | 29.0 | erande index visitor | 6.0 | 32.0 | 32.0 | 9.0 | 35.0 | Season of the con- |
| Actuated g/C Ratio | 0.04 | 0.18 | | 0.19 | 0.32 | | 0.07 | 0.36 | 0.36 | 0.10 | 0.39 | |
| v/c Ratio | 0.32 | 0.67 | 1. 2. 20. 400. | 0.96 | 1.02 | nambali dalah | 1.02 | 0.84 | 0.53 | 0.96 | 1.00 | 5.75. 91 |
| Control Delay | 52.4 | 45.5 | | 64.9 | 72.6 | <i>Vir</i> al (| 132.4 | 34.3 | 4.7 | 101.2 | 49.5 | ANK. |
| Queue Delay | 0.0 | 1.1 | | 6.5 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | |
| Total Delay | 52.4 | 46.5 | | 71.5 | 72.6 | | 132.4 | 34.3 | 4.7 | 101.2 | 50.1 | |
| LOS | D | D | 7 K * * * * * * * * | E | E | | F | С | Α | F | D | |
| Approach Delay | | 47.1 | | | 72.0 | | | 33.2 | | | 54,2 | |
| Approach LOS | | D | | | E | Section Section 1997 | | С | AND THE PERSON NAMED IN | and the second second | D | 11.7 °C (984.2) *C |
| Stops (vph) | 25 | 185 | | 508 | 459 | | 88 | 854 | . 39 | 130 | 1606 | |
| Fuel Used(gal) | 1 | 5 | ence of the second | 14 | 14 | · (a.). · · · · · · · · · · · · · · · · · · | 4 | 19 | 4 | 4 | 33 | 370 9 |
| CO Emissions (g/hr) | 40 | 324 | | 976 | 991 | | 299 | 1315 | 262 | 309 | 2308 | |
| NOx Emissions (g/hr) | 8 | 63 | , | 190 | 193 | 4-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0 | 58 | 256 | 51 | 60 | 449 | |
| VOC Emissions (g/hr) | | 75 | | 226 | 230 | | 69 | 305 | 61 | 72 | 535 | 28 |
| Dilemma Vehicles (#) | 0 | 0 | | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | ************ |
| Queue Length 50th (ft) | 14 | 118 | | 3 182 | ~344 | | ~71 | 288 | .∵ ⊹ 0 | 98 | ~406 | |
| Queue Length 95th (ft) | 40 | #207 | . vo empleon | #290 | #565 | The second second | #182 | #373 | 62 | #223 | #532 | |
| Internal Link Dist (ft) | | 990 | | | 718 | A. W. | | 226 | | | 328 | |
| Tum Bay Length (ft) | | | make a sign from a | - marin in Agenda and The Ta | | | - AND SHOOT PARTY OF | **/ | and the second second | 1.12.1200.190.000 | | |
| Base Capacity (vph) | 79 | 331 | | 648 | - 592° | | 118 | 1258 | 858 | 177 | 1973 | |
| Starvation Cap Reductr | BALLY M. P. L. Company of the Principle of | 0 | The state of the s | 0 | 0 | ware are are to the co | 0 | 0 | 0 | 0 | 0 | and the same than |
| Spillback Cap Reductn | (0) | 22 | | 22 | 0 | | 0 | 0 | ``` | · 0 | 5 | |
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| Reduced v/c Ratio | 0.32 | 0.72 | | 1.00 | ×1,02 | | | 0.84 | 0.53 | 0.96 | 1.01 | JUJA, |
| armone the over about a territorist proportion of the control of t | e vii itsaa talka eile eile e | neste de la constitution de la c | - www.verier.ed. | en en omre te de Englished d | SHOON ON CONTRACT | og nemeter i Stat | anan ang kalandaran pangkabahah | medali medicili | e a marker askin | 2005 (A. 100 (108 E. 102)) | and approximation | |

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Pretimed Maximum v/c Ratio: 1.02

Intersection Signal Delay: 51.5
Intersection Capacity Utilization 88.3%

Intersection LOS: D ICU Level of Service E

Analysis Period (min) 15

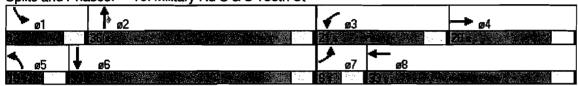
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 10: Military Rd S & S 188th St



LEVEL OF SERVICE CONCEPT

Because intersection capacity and traffic flow performance, or "level of service", are prime factors in the process of developing and evaluating alternatives, a brief description is presented here for the benefit of the lay reader.

The ratio of existing traffic volume to available capacity provides a measure of the intensity of traffic loading relative to the ability of the street intersection to accommodate the traffic. The number of lanes, presence of turn lanes, type of traffic control, signal phasing, etc., are important factors in determining capacity. As the volume-to-capacity (v/c) ratio approaches a value of 1.0 at signalized intersections, extreme congestion sets in, with long backups and several complete changes of the signal cycles occuring before a motorist can proceed. Motorists at stop-sign controlled intersection approaches face extremely long delays when the v/c ratio approaches 1.0. As traffic queues lengthen, this congestion can also impede access to and from upstream abutting property.

The term "level of service" is used to describe traffic flow at intersections. For signalized intersections, the level of service is based on control delay per vehicle (see **table A-1**). Control delay is a measure of all the delay contributable to traffic control measures, such as a traffic signal. Control delay includes initial acceleration delay, queue move-up time, stopped delay, and final acceleration delay.

| Table A-1 Level of Service and Volume/Capacity Ratio Relationships for Signalized Intersections | | | | | | | | | |
|---|--|--|--|--|--|--|--|--|--|
| Level of Service | General Description | Control Delay (seconds/vehicle) ¹ | Intersection V/C Ratio ² | | | | | | |
| Α | Free flow | ≤ 10.0 | ≤ 0.60 | | | | | | |
| В | Stable flow (slight delays) | 10.1 to 20.0 | 0.61 to 0.70 | | | | | | |
| С | Stable flow (acceptable delays) | 20.1 to 35.0 | 0.71 to 0.80 | | | | | | |
| D | Approaching unstable flow (tolerable delay - occasionally wait through more than one signal cycle before proceeding) | 35.1 to 55.0 | 0.81 to 0.90 | | | | | | |
| E | Unstable flow (intolerable delay, intersection operating at capacity) | 55.1 to 80.0 | 0.91 to 1.00 | | | | | | |
| F | Forced flow (jammed) | > 80.0 | > 1.00 | | | | | | |

^{1.} For operational analysis method which requires detailed geometric, traffic, and signal information usually used for existing conditions analysis.

Source: "Highway Capacity Manual", Transportation Research Board, 2000; and "Interim Materials on Highway Capacity", *Circular 212*, Transportation Research Board, 1980.

^{2.} For planning-level analysis method. Planning-level analysis is used when there is less certainty in the input when default values are typically relied upon and future traffic forecasts are used.

Level of service A is a condition of unimpeded flow, while level of service C is often used in the design of new urban streets as the lowest acceptable level for peak periods. Congestion begins to occur at level of service D (v/c from 0.81 to 0.90). Because of funding and/or environmental constraints for improvements, this level of service is being used by more and more cities as an adequate level, particularly for improvements to congested existing facilities. Increasingly unstable traffic flow with excessive delay and congestion occurs as level of service E (capacity) is approached (v/c = 0.91 to 1.00). For v/c > 1.00, level of service F (forced flow) is obtained, and the intersection is overloaded or is jammed due to traffic backups from overloaded downstream intersections.

It should be noted that equal v/c ratios at several locations do not necessarily indicate equal overall performance of intersections. One intersection may experience a high v/c ratio for a considerable period of the day while at another intersection the peak period lasts a short time. In addition, a low level of service is more tolerable at a low-volume intersection than a high-volume location.

The general level of service concept also holds for stop-sign controlled intersections, although the capacity of the stop-sign controlled approaches is less than that of the signalized intersection approach. **Table A-2** shows the level of service criteria for unsignalized intersections.

| Table A-2 Level of Service Criteria for Unsignalized Intersections | | | | | | | |
|---|------------------|--|--|--|--|--|--|
| Control Delay (d) ¹ | Level of Service | | | | | | |
| d ≤ 10 | A | | | | | | |
| 10 < d ≤ 15 | В | | | | | | |
| 15 < d ≤ 25 | С | | | | | | |
| 25 < d ≤ 35 | D | | | | | | |
| 35 < d ≤ 50 | E | | | | | | |
| d > 50 | F ² | | | | | | |

- 1. Control delay is measured in seconds per vehicle.
- For level of service F, when demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvements to the intersection.

Source: "Highway Capacity Manual", Transportation Research Board, 2000.

Capacity analysis for two-way stop-sign controlled intersections is based on the assumption that major street traffic is not affected by the minor street movements, and that left-turns from the major streets to the minor streets are influenced only by opposing major street through flow. Therefore, the level of service calculated for two-way stop intersections is based on delay experienced by only the minor street movements and the major street left-turn movement.

| MEM | ORANDUM |
|----------|---|
| To: | Karl Hufnagel Date: May 12, 2004 |
| From: | Kurt Gahnberg TG: 02250.00 |
| ce: | |
| Subject: | Bow Lake Transfer Station - Summary of Preliminary Transportation Assessment |

This memorandum briefly documents the results of the preliminary traffic assessment of access enhancement options for the existing Bow Lake Transfer Station, that were presented to KCSWD staff at a meeting March 5, 2004. It includes:

- Background
- Comparison of Alternatives
- Summary

Background

Options to enhance access at the Bow Lake transfer station have been under investigation by the RW Beck team since summer 2003. Current site access is hampered by the close proximity of the transfer station access road to the existing ramp terminals at the S 188th Street/I-5 Interchange. This close spacing results in traffic queue interference with access traffic, especially slower moving transfer trucks. In addition, safety is a concern for traffic entering S 188th Street from the site, and for left turning traffic from S 188th Street into the site. The Bow Lake Transfer Station remains an important component of King County solid waste management strategy far into the future.

Range of Options Considered

A wide range of access enhancement options have been considered by the team, ranging from minor channelization modifications, to traffic signalization of the site entrance intersection with S. 188th Street, to significantly more-expensive roadway and ramp revisions requiring coordination with Washington State Department of Transportation (WSDOT) to effectively implement. None of the lowest cost options provided any substantial benefit to improve existing traffic operations, or adequately accommodate future traffic volume levels associated with anticipated growth.

The only conceptual option that was determined to provide adequate traffic operational benefit was to combine the I-5 northbound ramps with the site access road, as well as S. 188th Street and Orilla Road approaches, into what is commonly

referred to as a single point interchange. The most recent analysis has focused on this core option, with further examination of permutations of this option. The most current evaluation focuses on the following options:

- Single Point Interchange (SPI) Basic design which brings the west leg of S. 188th Street into a single intersection with the I-5 northbound ramps, the east approach from Orillia Road, together with the access to the Bow Lake Transfer Station.
- SPI With Right Turn Bypass Removes right turning traffic from the I-5 northbound off ramp from the intersection, and accommodates them in a separate turning ramp to eastbound Orillia Road.
- SPI With Right turn Bypass and Orillia Road/I-5 Northbound Flyover This option removes the westbound Orillia Road destined for northbound for northbound I-5 from the intersection operation by accommodating them in a flyover ramp.

The basic option (SPI) improves operation over existing conditions by accommodating all traffic at a single point, allowing signalized control of the Bow Lake Transfer Station access, and doing so in a way that increases intersection spacing between the northbound and southbound I-5 ramp terminals. Implementation of any of the options above will require the close coordination between WSDOT and King County, as well as the neighboring city of Tukwila.

The analysis considered the following traffic characteristics:

- Background Traffic Growth A long range traffic horizon was considered. Traffic forecast factors were acquired from King County, and included the Green River Valley and Highline subareas, which are forecast to grow at approximately 23 and 5 percent, respectively. Application of these two data points resulted in consideration of a worst case and probable traffic forecast for 2023 conditions.
- AM and PM Peak Hour Traffic Analysis Both AM and PM peak hour traffic conditions were examined.
- Intersection Level of Service Traditional intersection analysis was conducted to assess future traffic delays and compare the affect of the identified options on the traffic capacity of the I-5/S 188th Street/Orillia Road freeway ramps and site access driveway.
- Traffic Queuing The close spacing of the S. 188th Street ramp terminals with northbound and southbound I-5, together with the Bow Lake Transfer Station access road, requires consideration of the relative effect of traffic queues occurring between intersections to understand the operational viability of future options.

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Comparison of Alternatives

The following summarizes the preliminary traffic assessment of the single point interchange options considered. It describes intersection Level of Service (LOS), traffic queuing, and other factors relevant to comparing the operational options for the following

Intersection Level of Service

Attachment 1 (LOS Handout from Meeting) summarizes the LOS analysis for each of the alternatives for 2023 conditions. Two scenarios were developed. First, a worst case assumption that all traffic would grow at a rate consistent with the Green river Valley growth factor (23%) was evaluated. Second, a hybrid growth rate that applied the Green River Valley rate only to the east leg of the intersection (Orillia Road approach) while applying the lower 5 percent growth rate to the other primary approaches. The latter reflects a more-reasonable approach, in that the high level of existing traffic associated with the I-5 off ramps, as well as S. 188th Street to the west, are likely to grow at a substantially lower rate than the higher growth Green River Valley. They are both presented to reflect sensitivity analysis.

The analysis summarized in Attachment 1 generally shows that the PM peak hour will continue to experience higher levels of traffic congestion than occur during the AM peak hour. It also shows that the blended growth rate results in more-feasible levels of service associated with each of the options. During the PM peak hour, resulting traffic operations would be similar for both the basic and basic with right turn bypass case, LOS "E". When the effect of the traffic removed as a result of the flyover ramp is added, operations would improve by a complete level of service, resulting in LOS "D", and about 15 seconds less delay than described for the other options in the PM peak hour.

In summary, traffic growth to 2023 will contribute to further substantial decline in overall street system and access performance surrounding the Bow Lake Transfer Station. The single point interchange will improve operations and safety compared to doing nothing, but alone would result in continued significant delays. Addition of the right turn ramp bypass alone would improve AM peak hour operations, but have a minimal impact on relieving PM peak hour congestion. However, with the addition of the flyover ramp to eliminate westbound traffic from Orillia Road to northbound I-5 from the intersection, a significant operational improvement could occur.

Traffic Queuing

Traffic queuing associated with the 2023 conditions were also reviewed. All options would provide adequate queuing capacity to accommodate anticipated traffic demand, with the exception of the eastbound approach to the intersection on S. 188th Street. This movement currently has traffic queues that exceed the available capacity, and will continue to do so in the future under any scenario. This queuing, while

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Neil Fuji May 11, 2004 Page 4 of 5

significant, would not directly affect the access viability for the single point interchange in serving the Bow Lake Transfer Station. However, fully understanding the interaction between traffic signals and intersections in the interchange area will require ongoing evaluation, and may receive additional scrutiny in light of any specific development or transportation improvement proposal.

Summary

KCSWD is considering the further development of the Bow Lake Transfer Station to support the County's solid waste management strategy. Current site access is problematic in that heavy through traffic volumes on S. 188th Street, together with turning movements associated with the closely spaced I-5 ramp terminals, result in substantial access delays, and safety concerns for traffic turning into and out of the Bow Lake site. Of the range of improvements considered, the modification of the I-5 northbound ramps to realign the landing point to provide a 5-way single intersection that combines the Bow Lake access road provides improved safety and operations. However, in order to provide operating conditions of LOS "D" or better during both AM and PM peak hour conditions, it is necessary to consider further substantial investment in the roadway infrastructure, including the development of a single point interchange with the I-5 northbound ramp terminal and the Bow Lake transfer station access, incorporation of a separate right turn access from the northbound off-ramp to eastbound Orillia Road, and the development of a flyover structure to intercept westbound Orillia Road traffic destined for northbound I-5.

Based on this analysis, further investigation of the feasibility and cost of construction associated with this concept should be undertaken.

Attachment

M\02\02150 Bow Lake TS\Summary Memo - Traffic Assessment.doc

The Transpo Group

ATTACHMENT

Bow Lake Transfer Station Level of Service

PM Peak Hour LOS - Single Point NB Ramp Intersection

| | 2023 with | Green Valle | y Growth | 2023 with Highline/Green Valley Growth | | | | |
|----------------------------------|-----------|-------------|----------|---|-------|------|--|--|
| Intersection Options | LOS1 | Delay² | V/C³ | LOS | Delay | V/C | | |
| Basic Design | | 88.4 | 1.08 | E | 61.3 | 1.01 | | |
| w/ right by-pass | .F. | 88.3 | 1.08 | Е | 60.8 | 1.00 | | |
| w/ right by-pass and flyover4 | E | 76.9 | 1:02 | D | 44.5 | 0.91 | | |

- 1. Level of service.
- Average delay in seconds per vehicle.
- Volume-to-capacity ratio.
- 4. The flyover alternative was also evaluated with the existing intersection geometry. The results indicated overall operations were similar to or worse than the option with the flyover added to the single point intersection; and resulting traffic queues between existing intersections were unacceptable.

AM Peak Hour LOS - Single Point NB Ramp Intersection

| | | | | 2023 with | Highline/G | reen Valley |
|----------------------------------|-----------|---------------|-----------|-----------|------------|-------------|
| | 2023 with | n Green Valle | ey Growth | | Growth | |
| Intersection Options | LOS | Delay | V/C | LOS | Delay | V/C |
| Basic Design | E. | 76.6 | 1.04 | E | 61.4 | 0.98 |
| w/ right by-pass | E | 56.8 | 0.98 | D | 45.8 | 0.93 |
| w/ right by-pass and flyover4 | D | 37.7 | 0.87 | ¢ | 26.4 | 0.78 |

- 1. Level of service.
- 2. Average delay in seconds per vehicle.
- 3. Volume-to-capacity ratio.
- 4. The flyover alternative was also evaluated with the existing intersection geometry. The results indicated overall operations were similar to or worse than the option with the flyover added to the single point intersection; and resulting traffic queues between existing intersections were unacceptable.

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